2020

PHILIPPINE ENERGY SITUATIONER & KEY ENERGY STATISTICS

2020 PHILIPPINE ENERGY SITUATIONER

This issue presents an analysis of energy supply and demand situation in the Philippines for 2020 vis-à-vis 2019. The energy data used herein are based on the Energy Balance Table (EBT) (as of 10 June 2021) as generated by the Policy Formulation and Research Division (PFRD), unless otherwise stated. Kindly note that Non-Energy Use is included in the discussion for Total Final Energy Consumption (TFEC) per sector in this report.

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ABBREVIATIONS and ACRONYMS USED

BBL	Barrels
DOTr	Department of Transportation
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GVA	Gross-Value Added
GWh	Gigawatt-Hour
$ktCO_2e$	Thousand Tons of Carbon Dioxide Equivalent
kTOE	Thousand Tonnes of Oil Equivalent
kWh	Kilowatt-hour
LRT	Light Rail Transit
MB	Thousand Barrels
MMB	Million Barrels
MMMT	Million Metric Tons
MMSCF	Million Standard Cubic Feet
MMT	Thousand Metric Tons
$MtCO_2e$	Million Tons of Carbon Dioxide Equivalent
MTOE	Million Tonnes of Oil Equivalent
MW	Megawatt
MWh	Megawatt-Hour
MRT	Metro Rail Transit
ROM	Run of Mine
tCO_2e	Tons of Carbon Dioxide Equivalent
TFEC	Total Final Energy Consumption
TOE	Tonnes of Oil Equivalent
TPES	Total Primary Energy Supply
TWh	Terrawatt-Hour

A. TOTAL FINAL ENERGY CONSUMPTION (TFEC)

Total final energy consumption (TFEC) reached 32.4 million tons of oil equivalent (MTOE) in 2020, a 10.7 percent drop from a year-ago level of 36.3 MTOE *(Figure 1)*. Varying levels of community quarantines that followed the declaration of State of Public Health Emergency in March 2020[1] halted major economic activities, including public and private transportation, which resulted in reduced energy consumption of end-use economic sectors, except households. The transport sector posted the steepest decline with 22.5 percent in its energy utilization. Increased demand for personal protective equipment (PPE) drove non-energy use (i.e., as raw materials / feedstock[2]) to increase by 11.2 percent.

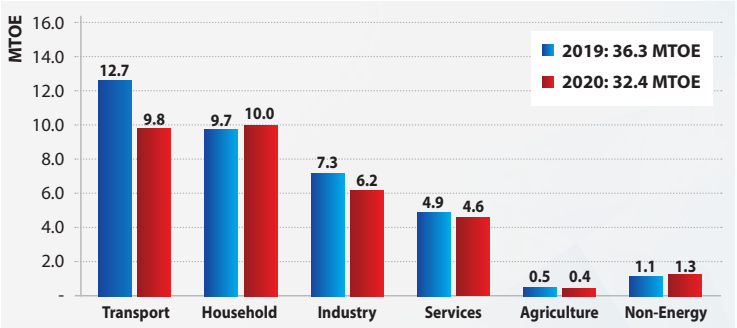


Figure 1: Total Final Energy Consumption By Sector (2019 vs. 2020), MTOE

Households consumed 10.0 MTOE and contributed about a third (31.0 percent share from 26.8 percent in 2019) of TFEC. Of this, electricity consumption accounted for bulk as it significantly increased by 12.2 percent due to alternative work-from-home (WFH) scheme and adherence to "stay-at-home" ordinances imposed to curb the spread of COVID-19 *(Figure 2)*. The transport sector dropped to second place with its 30.4 percent share from 35.0 percent in 2019 as restrictions in land, air and water travel led to depressed demand for gasoline and diesel. Industry and services contributed 19.2 percent and 14.2 percent shares, respectively. Energy utilization for industrial processes dipped by 15.1 percent, while that of service establishments dropped by 6.6 percent as extended lockdowns forced non-essential businesses and factories to temporarily cease operations. The agriculture sector, having the least contribution with 1.3 percent share, registered a 7.7 percent contraction in its energy use, as it suffered from the impact of strong typhoons and African Swine Fever (ASF) that persisted during the year.

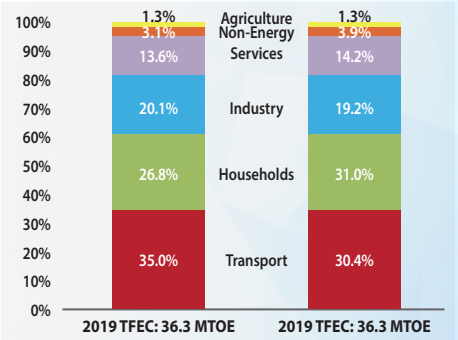


Figure 2: Total Final Energy Consumption, By Sectoral Shares (2020 vs. 2019)

[1] Proclamation No. 922 s. 2020 "Declaring a State of Public Health Emergency throughout the Philippines" (March 8, 2020)
[2] Includes naphtha, lubes and other petroleum products

I. Total Final Energy Consumption by Fuel

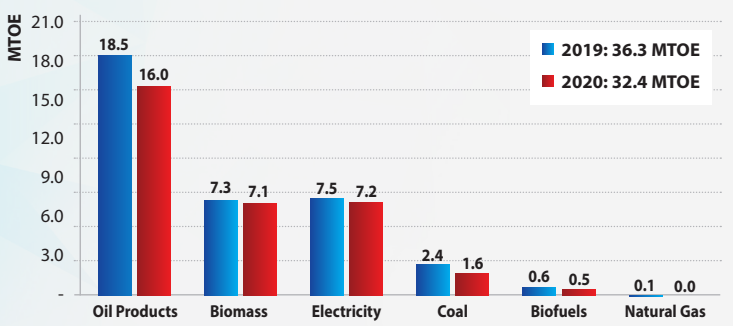


Figure 3: Total Final Energy Consumption By Fuel (2019 vs. 2020)

Aggregate consumption of oil products accounted for 16.0 MTOE, 13.2 percent lower than last year's 18.5 MTOE and contributing almost half (49.4 percent) in 2020 TFEC *(Figure 3)*. Gasoline and diesel, with combined share of 74.8 percent of total oil consumption, went down by 14.8 and 14.6 percent, respectively, as operation of jeepneys, buses and other modes of mass transportation were suspended for several months.

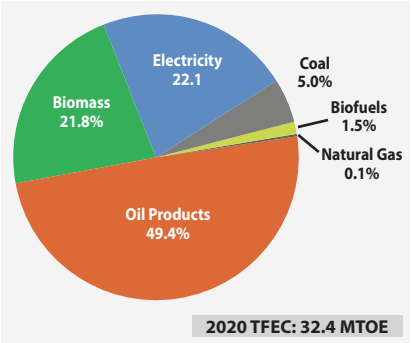


Figure 4: Total Final Energy Consumption, By Fuel Shares (Percent), 2020

Electricity consumption accounted for 22.1 percent as it fell by 4.4 percent to 7.2 MTOE from its year-ago level of 7.5 MTOE. This was due to the suspension or cut-back in economic activities in both the industry and services sector, particularly in the Greater Manila Area (GMA) and other economic zones across the country. Meanwhile, household electricity consumption increased its share to 40.1 percent of total as majority of the workforce shifted to WFH scheme for several months.

Biomass[3] for end-use applications contributed 21.8 percent share, albeit declined by 3.5 percent vis-à-vis the 2019 level. Usage of biomass in households increased by 1.2 percent and accounted for the bulk with a share of 82.6 percent of the fuel's 7.1 MTOE consumption level. Aggregate biomass utilization among food services, sugar and food processing industries, accounted for the remaining shares of 17.4 percent, significantly declined by 21.1 percent due to reduced operating hours as a result of slowdown in consumer demand[4] *(Figure 4)*.

Coal consumption for end-use applications, primarily in the cement industry, posted a substantial decline of 30.8 percent at 1.6 MTOE from 2.4 MTOE in 2019. This was attributed

[3] Includes charcoal, fuelwood, rice hull, bagasse, agricultural and animal wastes.
[4] Memorandum Circular (MC) No. 20-04, Series of 2020 "Prescribing the Implementing Guidelines for Resolution No. 12 Issued by the Inter-Agency Task Force (IATF) for the Management of Emerging Infectious Diseases on Social Distancing and Business Operations

to the production and operational disruptions brought by the pandemic as cement companies reported delayed expansion projects.[5]

The reduction in the utilization of gasoline and diesel translated to a 15.0 percent slump in the aggregate consumption of biofuels (biodiesel and bioethanol) as levels dropped to 474.8 kTOE from 558.4 kTOE of the previous year.

Consumption of natural gas for non-power applications plunged by 39.5 percent due to the closure of the Philippine Shell Petroleum Corporation (PSPC)'s Tabangao refinery in response to the drastic decline in local product demand and the significant deterioation of regional refining margins brought by the COVID-19 pandemic.

II. Total Final Energy Consumption by Sector

A. Transport

The transport sector bore the brunt of the restrictions imposed on the movement of individuals, goods and services to stem the spread of COVID-19. It's total energy consumption dropped by 22.5 percent – an unprecedented decline since 1990. This was driven by the initial total ban on all forms of public transportation under the enhanced community quarantine (ECQ), as well as suspension of domestic air and inland water transport. Despite the upgrading of community quarantines that allowed gradual resumption of transport routes, public transport operations remained at reduced capacity that further depressed energy demand of the sector.

Road transport, which accounted for 89.9 percent of the sector's energy consumption *(Figure 5)*, posted a 20.7 percent decline caused by reduced mobility options because of travel restrictions. Such was evident in the 30.0 percent reduction in average traffic congestion levels in Metro Manila during the year.[6]

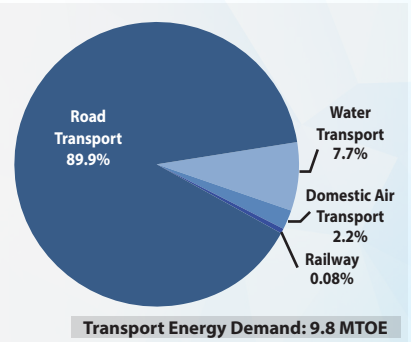


Figure 5: Transport Final Energy Consumption, By Subsector (Percent), 2020

Energy consumption for inland water transport posted a 15.2 percent reduction, from 898.8 kTOE in 2019 to 762.6 kTOE in 2020. Mobility restrictions due to community quarantines throughout the year hampered the operation of cargo operators, shippers and other marine service providers. There was a reduction in the cargo throughput and passenger volume of 8.4 percent and 70.3 percent, respectively, based on data from the Philippine Ports Authority (PPA).[7]

[5] Statement of Cemex Holdings Philippines during the Public Hearing on the Conduct of Monitoring of the Philippine Cement Industry [TCI (SG) No. SG-2020-MROC-Cement by the Tariff Commission] (December 18, 2020).
[6] COVID-19 and Transport in Asia and the Pacific: Guidance Note (ADB, December 2020).
[7] Summary Port Statistics 2019 and 2020 (Philippine Ports Authority).

Domestic air transport suffered the biggest setback, as its energy consumption plummeted by 65.1 percent to 218.7 kTOE, the lowest recorded post-2009 Asian Financial Crisis. Travel restrictions due to COVID-19 resulted in suspension of domestic flights starting in March 2020, while lockdowns and quarantines crippled domestic tourism. The data from the Civil Aeronautics Board (CAB) indicated that the air cargo volume more than halved vis-à-vis 2019, dropping to its lowest level of 147.7 million kilograms since 2011.[8]

Energy consumption for railway transport, with a meager share of 0.1 percent to total transport, went down by 24.6 percent to 8.1 kTOE from 10.7 kTOE in 2019 as quarantine restrictions froze the country's main railway systems: Light Rail Transit Lines 1 and 2, Metro Rail Transit 3, and Philippine National Railways for several months.

The recorded declines in energy consumption across all transport modes led to the downward trend in volume per type of fuel. Consumption of gasoline and diesel, with its combined share of 92.0 percent to transport demand *(Figure 6)*, fell by 14.9 percent and 24.2 percent, respectively, owing to the initial suspension and eventual reduction in operating capacities of public utility vehicles (PUVs). Utilization of bioethanol and biodiesel likewise posted parallel reductions of 14.8 percent and 23.5 percent, respectively. Aviation fuels nose-dived by 65.1 percent due to curtailment of domestic air travel, while fuel oil consumed in domestic shipping industry contracted by 31.7 percent. Auto-LPG, with its declining viability as fuel for taxis, decreased by 50.1 percent.

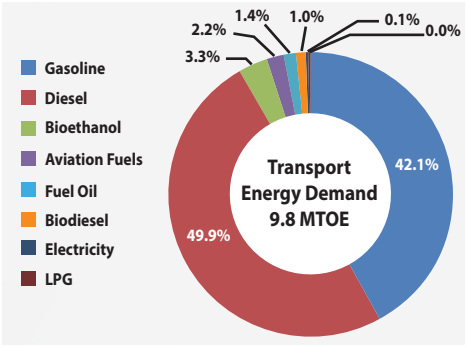


Figure 6: Transport Final Energy Consumption By Fuel (Percent), 2020

B. Households

Changes in workforce schemes and restriction in movements due to COVID-19 contributed to the shift in the household's energy consumption pattern. This resulted in an increment of 3.3 percent from 2019 level of 9.7 MTOE to 10.0 MTOE in 2020.

Household electricity consumption registered a 12.2 percent hike, as levels reached 2.9 MTOE from 2.6 MTOE in 2019. It's share to the sector's total energy consumption likewise improved to 29.4 percent brought by increased usage of electrical appliances, particularly for work, space cooling and recreational purposes. With close to 900,000 additional households with access to electricity during the year,[9] household sector accounted for the bulk of total electricity consumption.

[8] Civil Aeronautics Board (CAB) Statistics.

[9] Electrification level as of December 2020, around 23.5 million households have access to electricity: DOE Energy Annual Report (EAR), 2020

Biomass continues to occupy the biggest chunk at 58.3 percent share of the energy consumption of households due to its abundance and accessibility in the rural areas *(Figure 7)*. Its aggregate level slightly went up by 1.2 percent to 5.8 MTOE. With longer hours spent at home, households consumed more fuelwood and charcoal for cooking and heating by 0.5 percent and 4.5 percent, respectively.

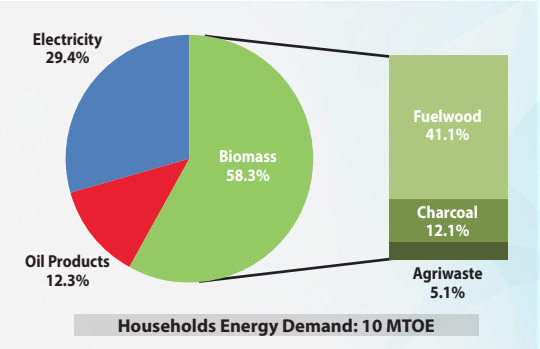


Figure 7: Energy Consumption of the Residential Sector By Fuel Shares (Percent), 2020

Oil products, specifically LPG and kerosene, accounted for 12.3 percent share of household energy consumption. Utilization of these oil products for cooking and lighting went down by 4.3 and 29.4 percent, respectively.

C. Industry

Total industry output contracted by 13.2 percent as only the production of essential goods was allowed by the government for continuous operation. The sector's energy requirement slipped by 15.1 percent from 2019 level of 7.3 MTOE to 6.2 MTOE in 2020.

While the manufacturing subsector consistently accounted for the lion's share at 88.8 percent *(Figure 8)*, its energy consumption decreased by 17.9 percent driven by reduced utilization in energy-intensive subsectors such as food processing (-18.5 percent), cement (-45.2 percent), machinery and equipment (-16.1 percent).

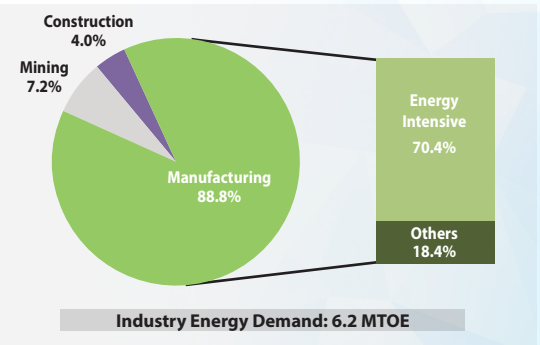


Figure 8: Energy Consumption of the Industrial Sector By Subsector (Percent), 2020

The construction sub-sector, touted as the fastest-growing in Asia-Pacific,[10] registered an 8.5 percent drop in its energy consumption to 249.5 kTOE from last year's 272.7 kTOE. Construction activities were completely halted in the second quarter and workers were temporarily displaced due public health concerns and travel restrictions. The subsector also suffered from reduced infrastructure spending due to re-allocation of government resources to address the pandemic.

[10] "Philippines' Construction Industry to reach USD75.1 billion in 2021," Global Data, August 2020.

The mining subsector, unaffected by the COVID-19 pandemic,[11] increased its energy consumption by 37.1 percent to 447.8 kTOE. Since large-scale metallic mining is recognized as export industry and allowed to continue operating following precautionary measures as advised by the Inter-Agency Task Force (IATF), majority of mineral commodities, particularly that of nickel, gold and copper reported a growth in production output. Moreover, the ban on Indonesia's nickel export allowed the Philippines to become the largest supplier of nickel ore to China in response to the strong demand in its stainless-steel industry.[12]

Electricity was the primary fuel used for various production processes, as it acounted for 35.4 percent share of total industry's energy consumption. However, its utilization dwindled by 9.3 percent to 2.2 MTOE as COVID-19 response measures impeded manufacturing activity and reduced the global demand for industrial products.

With its 25.1 percent share in industry's energy demand *(Figure 9)*, aggregate consumption of oil products went up by 12.7 percent to 1.6 MTOE from its year-ago level of 1.4 MTOE. Among oil products, fuel oil and diesel recorded growth rates of 17.6 and 10.1 percent, respectively, as their utilization increased in mining subsector and its related industries. Coal consumption, primarily in the cement manufacturing industry, shrank by 32.6 percent to 1.5 MTOE from 2.2 MTOE of 2019. This was driven by the slowdown in cement demand as infrastructure projects were halted or delayed due to strict quarantine controls, while an increasing volume of imported cement affected the local production[13]. Biomass, used extensively in food processing and sugar production, accounted for a 14.6 percent share of the sector's energy demand with a recorded level of 0.9 MTOE. On the other hand, a minimal demand for natural gas (37.2 kTOE) for non-power application and biodiesel (13.1 kTOE) was likewise recorded during the period.

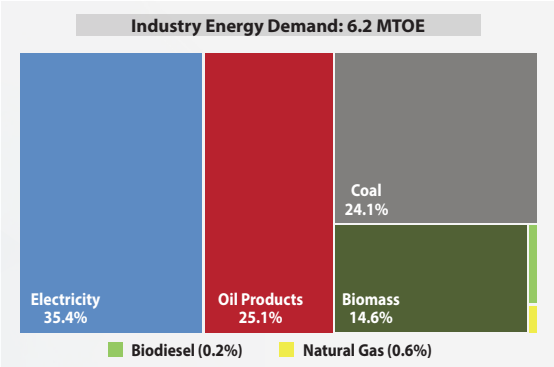


Figure 9: Energy Consumption of the Industry By Fuel Shares (Percent), 2020

D. Services[14]

As the government worked extensively towards "flattening the curve" to avoid overwhelming the country's healthcare system, mandatory closures of business

[11] Report of the Chamber of Mines of the Philippines (COMP) during the webinar hosted by Arangkada Philippines.
[12] S&P Global Market Intelligence Report (21 July 2020).
[13] DTI's Department Administrative Order No. 20-08 titled "In the Matter of the Definitive General Safeguard Measures on the Importation of Cement from Various Countries," issued on 26 October 2020.
[14] Trade and services, excluding Transport.

establishments were implemented. However, it crippled large-, medium-, small and micro-sized establishments (MSMEs), particularly those engaged in wholesale and retail trade, while the reduced capacity of public transportation created mobility and accessibility challenges for consumers and workers alike, as well as travel restrictions that impeded domestic tourism demand. As such, the aggregate energy consumption of services establishments slipped by 6.6 percent to 4.6 MTOE from its 4.9 MTOE level in the previous year.

Diesel accounted for the bulk of the sector's total energy demand with 40.7 percent share *(Figure 10)*, its consumption increased by 10.0 percent to 1.9 MTOE. Lower pump prices that prevailed during the year allowed the hike in diesel sales to ensure unhampered operations of frontline services, particularly hospitals and other allied medical health establishments. LPG consumption dropped by 6.4 percent as food establishments were either closed or operating on reduced capacities. Consumption of fuel oil likewise contracted by 20.2 percent, albeit contributing 2.7 percent share of total energy demand. Electricity usage in the sector significantly declined by 18.6 percent due to curtailed operating hours of establishments such as malls and offices, while hotels were ordered closed down for extended months. Biomass consumption likewise slipped by 7.8 percent from reduced utilization in food services establishments.

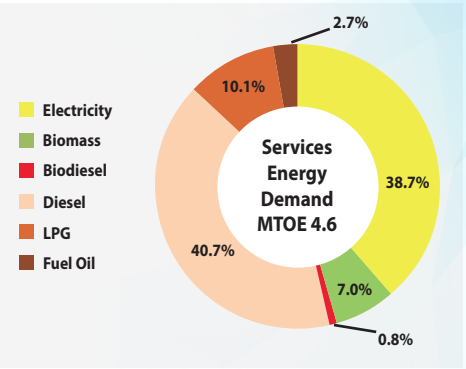


Figure 10: Energy Consumption of the Services Sector By Fuel Shares (Percent), 2020

E. Agriculture

Aside from supply chain disruptions, depressed local demand and export volume, mobility challenges for workers due to restrictions imposed because of the COVID-19 pandemic, the agriculture was likewise battered by series of devastating typhoons and outbreak of the African Swine Fever (ASF). Given the lackluster performance of agriculture-related activities, the sector posted a 7.7 percent decline in its energy consumption from 473.5 kTOE in 2019 to 436.8 kTOE in 2020 *(Table 1)*.

Table 1. Agriculture Energy Consumption By Subsector

Subsector	2019	2020	Growth Rate (%)
Agri-Industry	**253.9**	**262.7**	**3.5**
Agri-Crops Product	84.3	65.4	-22.4
Livestock/Poultry	161.6	189.9	17.5
Agri Services	7.9	7.3	-7.5
Forestry	**1.1**	**1.4**	**26.2**
Fishery	**218.5**	**172.7**	**-20.9**
Total	**473.5**	**436.8**	**-7.7**

The energy utilized in crop production decreased significantly by 22.4 as the volume of major crops (palay, sugarcane and cassava) fell during the year due to back-to-back typhoons that hit parts of the country during the last quarter of 2020.[15] On the other hand, the energy consumption of the livestock and poultry subsector went up by 17.5 percent driven by gains in poultry production vis-à-vis impact of ASF on hog breeding/fattening. The poultry subsector production volume rose due to shift in demand from pork to chicken as part of household's strategy to cope with the incessant increase in pork prices, and the heavy engagement of integrators like San Miguel and Bounty.[16] The fishery subsector lost its momentum as the fishing season from the first semester was greatly affected by quarantine restrictions implemented starting mid-March of the year, which resulted in a 20.9 percent drop in energy consumption from last year's 218.5 kTOE level. With the slump in agriculture subsectors, its support services also contracted by 7.5 percent. Despite its meager share to the sector's energy demand, the forestry sub-sector increased its consumption to 1.4 kTOE from 1.1 kTOE in 2019.

The agriculture sector relied heavily on oil products and electricity to fuel its processes. Electricity contributed 50.8 percent share to the sector's total energy consumption *(Figure 11)*. It registered a 7.5 percent contraction to reach 222.0 kTOE in 2020 from its 2019 level of 239.9 kTOE. Among the oil products, diesel consumption accounted for 45.4 percent share of total, despite an 8.8 percent reduction from its previous year's level of 217.5 kTOE as the lockdowns affected the flow of goods from farms to urban markets. Biodiesel and fuel oil followed the same trend, posting reductions of 6.5 percent and 8.1 percent, respectively. Gasoline posted an increase of 8.0 percent from 9.0 kTOE in 2019 to 9.8 kTOE, while a minimal volume of kerosene was reported at 0.5 kTOE.

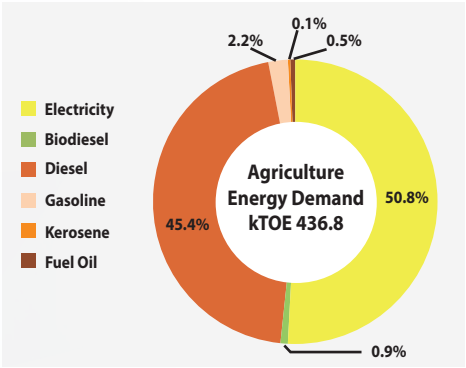


Figure 11: Energy Consumption of the Agriculture Sector By Fuel (% Shares), 2020

[15] Super Typhoon Rolly (1 November 2020), Tropical Storm Siony and Tonyo (5-8 November 2020), Typhoon Ulysses (11-12 November 2020)

[16] Report on the 2020 Performance of Philippine Agriculture (Philippine Statistics Authority)

B. TRANSFORMATION

I. Oil Refining

In May 2020, the country's two (2) refineries – Pilipinas Shell Petroleum Corporation (PSPC) in Tabangao, Batangas and Petron in Limay, Bataan – went on economic shutdown to give way to maintenance activities on major processing units and mitigate the effects of low demand and poor refining margins on fuel products as caused by COVID-19 pandemic.[17] However, prolonged depressed demand for oil products during the year led to PSPC's decision to permanently close and convert its refinery site into a full import terminal in September of the year. On the other hand, Petron underwent alternate shutdown and resumption of its refinery for the remaining months. The Shell refinery shutdown reduced the country's refining output by 41.8 percent to 34.6 million barrels (MMB) from 59.5 MMB of last year.

As such, the volume of total marketable products posted a steep descent of 41.4 percent to 4.5 MTOE vis-à-vis last year's level of 7.6 MTOE *(Figure 12)*. The share of total marketable products for the period were composed of diesel (45.1 percent), gasoline (22.6 percent) and fuel oil (7.6 percent). The rest of the products were aviation fuel (7.6 percent), LPG (3.7 percent), kerosene (0.5 percent), and naphtha and other products (12.9 percent).

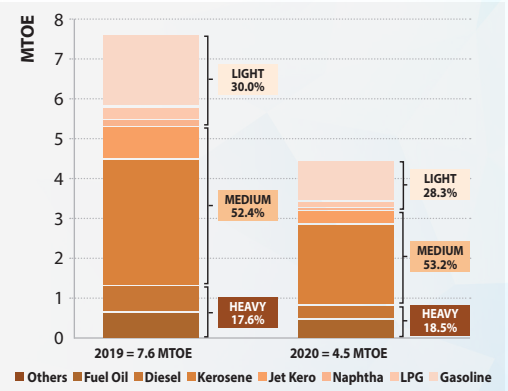


Figure 12: Refinery Production by Fuel (2019 vs 2020), MTOE

II. Power Generation

Aggregate **power generation output** from all power plants fell by 4.0 percent to reach 101.8 terawatt-hour (TWh) in 2020 as the country entered recession that caused reduction in economy-wide electricity demand. Coal power plants contributed more than a half at 57.2 percent (58.2 TWh), natural gas at 19.2 percent (19.5 TWh), geothermal and hydropower contributed 10.6 percent (10.8 TWh) and 7.1 percent (7.2 TWh), respectively. On the other hand, the combined generation output of solar, wind and biomass recorded at 3.7 TWh, representing 3.6 percent share of the total generation mix during the period *(Figure 13)*.

[17] Based on Petron's disclosure to the Philippine Stock Exchange dated 14 December 2020

The total volume of fuel input for power generation contracted by 0.3 percent to 31.0 MTOE in 2020 *(Figure 14)*. Fossil fuels accounted for about two-thirds (62.2 percent), bulk of which from coal with 15.7 MTOE. Coal input increased by 3.8 percent from its year-ago level of 15.1 MTOE. On the other hand, natural gas and oil (diesel and fuel oil) dropped by 9.8 percent and 35.6 percent, respectively, caused by changing patterns in overall electricity demand due to the full lockdowns.

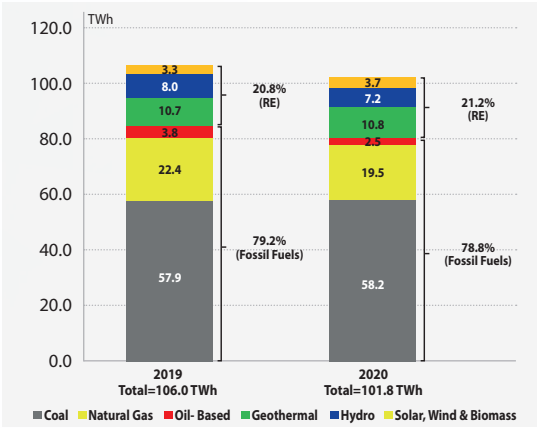


Figure 13: Power Generation by Fuel (2019 vs 2020), TWh

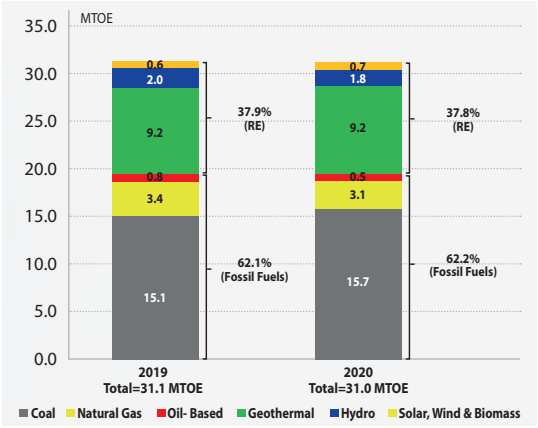
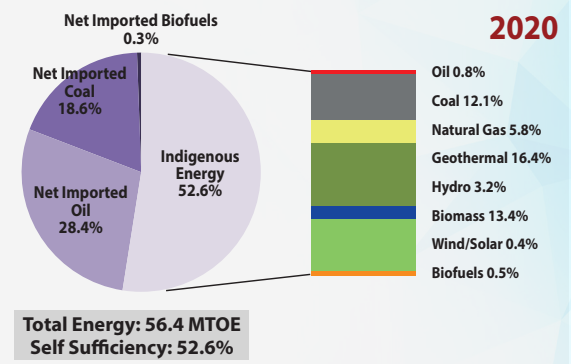


Figure 14: Fuel Input to Power Generation by Fuel (2019 vs 2020), MTOE

With increased utilization of fossil fuels, renewable energy's (RE) share posted a slight reduction from last year's 11.8 MTOE as levels dropped to 11.7 MTOE. Geothermal slightly increased by 0.6 percent from 9.2 MTOE in 2019, while hydro input went down by 10.4 percent from 2.0 MTOE to 1.8 MTOE. The combined inputs from solar, wind and biomass registered at 0.7 MTOE, a 16.1 percent higher than the previous year's level. Such significant increase of variable RE's fuel input was attributed to the 21.5 percent and 10.2 percent leap in biomass and solar, respectively, during the period.

C. TOTAL PRIMARY ENERGY SUPPLY

Consistent with the downtrend in energy demand, total primary energy supply (TPES) fell to 56.4 MTOE in 2020, a 5.8 percent lower vis-à-vis 2019 level of 59.9 MTOE. The indigenous and net imported energy levels registered 4.0 percent and 7.8 percent reductions, respectively. With the decline in net importation, energy self-sufficiency improved by 1.0 percentage points from 51.6 percent in 2019 to 52.6 percent *(Figure 15)*.



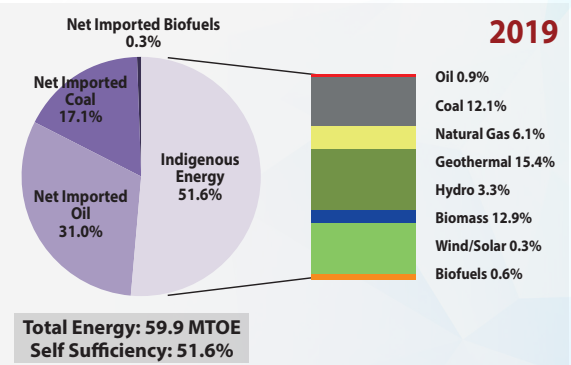


Figure 15. Total Primary Energy Mix by Fuel (2019-2020), % Shares

Coal overtook oil as the country's biggest energy source with 30.8 percent share of TPES vis-à-vis oil's 29.2 percent share. Aggregate oil supply declined by 13.7 percent to 16.5 MTOE due to cuts in domestic production and net importations. On the other hand, despite an uptrend in coal importation for power generation that offset the slump in local coal production, the total coal supply posted a slight reduction of 0.8 percent. Adding up natural gas's share of 5.8 percent, fossil fuels accounted for a 65.8 percent share of TPES. Meanwhile, despite an increase in the percent share of aggregate RE supply to TPES, from 32.9 percent in 2019 to 34.2 percent in 2020, the total RE supply went down by 2.0 percent reaching 19.3 MTOE during the period.

I. Indigenous Energy

Total indigenous energy production dropped by 4.0 percent to 29.7 MTOE, pulled down by reduced domestic production of coal (5.8 percent) and natural gas (9.3 percent). Among the sources of indigenous energy, only geothermal and solar contributed a positive growth rate during the period.

A. Fossil Fuels

Oil. With only 0.8 percent contribution to TPES, total domestic crude oil production[18] declined by 12.7 percent, from 522.6 kTOE in 2019 to 456.3 kTOE. Crude oil production has been on the downtrend since 2015 driven by declining viability of the country's current oil fields. Oil wells in Nido, Matinloc and North Matinloc have ceased operation, while Galoc and Alegria produced lower crude volumes. Meanwhile, production of condensate from the Malampaya gas field, which is wholly exported, dropped by 13.4 percent vis-à-vis its 1.4 percent contraction in 2019 production level.

Coal. While indigenous coal accounted for 12.1 percent share of TPES, majority of coal mines in the country registered lower production output. Coal output from Semirara Island, the country's largest coal mine located in the province of Antique, posted a 5.8 percent decline during the year, attributed to the Semirara Mining and Power Corporation (SMPC)'s decision to voluntarily defer operation in a block within its Molave mine area due to water build-up issues.[19] Likewise, an aggregate output from small-scale mining was 13.4 percent lower vis-à-vis 2019 level.

Natural Gas. Natural gas production stood at 3.3 MTOE, equivalent to a 5.8 percent share of TPES. Output from the Malampaya field, the country's single source of natural gas, declined by 9.3 percent from its 2019 level of 3.6 MTOE. The reduction was primarily due to depressed demand for electricity in the Luzon grid due to the implementation of community quarantines.

B. Renewable Energy

Geothermal. Geothermal maintained its position as the biggest contributor to total indigenous energy at 31.2 percent share, equivalent 16.4 percent share of TPES in 2020. Geothermal supply slightly improved by 0.6 percent to reach a level of 9.2 MTOE during the period.

Biomass. Next to geothermal, biomass energy accounted for the second largest share at 25.5 percent of the country's total indigenous energy supply, providing 13.4 percent share to TPES. Despite being an abundant resource, biomass supply went down by 2.2 percent to 7.6 MTOE from its year-ago level of 7.7 MTOE, attributed to reduced utilization for end-use applications. However, its utilization for power generation increased with additional capacities that came in during the year, including the Surallah Power Generation, Inc.'s 6-MW Biomass Power Plant Project installed during the first quarter (Q1) of 2020.[20]

Hydro. Hydro supply, which accounted for 6.0 percent share of the total indigenous energy supply and 3.2 percent share of TPES, was hounded by "mild" El Niño experienced by the country from 2019 until the early part of 2020. It contributed

[18] Includes condensate
[19] Based on SMPC's disclosure to the Philippine Stock Exchange dated 01 December 2020.
[20] DOE website/renewable energy/awarded_biomass_2020-12-31.pdf

to the 10.4 percent reduction in hydropower production, as levels went down to 1.8 MTOE from last year's 2.0 MTOE.

Solar. Despite a meager share of 0.2 percent to TPES, solar energy has steadily gained popularity and preference as a technology for power applications. This led to the 10.2 percent hike in its supply levels to 118.0 kTOE from 107.1 kTOE a year ago. Two (2) solar projects[21] commenced commercial operations – the Concepcion 1 Solar Power Project (100.6 MW) and Cadiz Solar Power (132.5MW).

Wind. Wind energy contributed 0.2 percent share to TPES with supply levels fell by 1.5 percent at 88.3 kTOE in 2020 compared to 89.6 kTOE last year.

Biofuels. Depressed oil consumption due to the COVID-19 pandemic brought the domestic supply of biofuels (biodiesel and bioethanol) to decrease by 24.1 percent from previous year's 376.9 kTOE to 286.1 kTOE. Domestic supply of biofuels contributed 1.0 percent share to the total indigenous energy during the period. Currently, there are 13 biodiesel producers and 12 bioethanol facilities in operation with combined capacites of 707.9 million liters (biodiesel)[22] and 380.5 million liters (bioethanoll), respectively.[23]

II. Net Energy Imports[24]

As COVID-19 pandemic created an unprecedented disruption in global trade, the country's net energy imports declined by 7.8 percent from 28.9 MTOE in 2019 to 26.7 MTOE in 2020. Of the total net energy imports, three-fifths (59.9 percent) were oil and oil products, while coal and biofuels contributed 39.3 percent and 0.7 percent shares, respectively, to total net energy imports *(Figure 16)*.

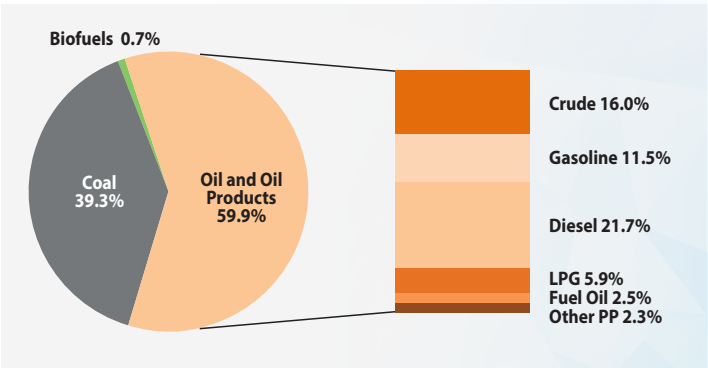


Figure 16. Net Energy Imports, by Fuel (% Shares), 2020

[21] DOE website/renewable energy/awarded_solar_2020-12-31.pdf
[22] DOE website/renewable_energy/list-of-accredited-biodisel-producers-as-of-2020-12-31.pdf
[23] DOE website/renewable_energy/list-of-accredited-bioethanol-producers-as-of-2020-12-31.pdf
[24] This is derived as total primary energy supply (TPES) less indigenous production. Alternatively, it can also be calculated as the sum of imports and stock change (+/-) less exports and international bunkers (aviation and marine)

Of the 17.3 MTOE aggregate oil import volume, 74.3 percent was finished oil products and the rest crudes. Crude oil imports fell dramatically by 54.3 percent from 8.2 MTOE in 2019 to 4.4 MTOE, while finished oil products registered a 6.4 percent reduction from its year-ago level of 13.7 MTOE. The downtrend in oil importation is driven by the COVID-19 pandemic that led to the economic shutdown of country's refineries – Petron's Bataan refinery and PSPC's Tabangao refinery for several months, as well as depressed domestic demand due to the halt in economic activity and restrictions on mobility across the country.

With the closure of PSPC's Tabangao refinery, the excess volume from the Galoc field allowed for crude oil exports to increase more than twice (254.6 percent) its 2019 level of 133.6 kTOE. Exports of finished oil products went down by 2.1 percent to 0.9 MTOE attributable to the reduction in global demand. Exports of condensate from Malampaya also posted a 13.4 percent drop from its 2019 level of 418.3 kTOE.

Middle East was the primary source of crude imports with 73.0 percent share, while Russia and nearby countries in the Asia-Pacific Region[25] supplied 15.4 percent share and 11.7 percent share, respectively. On the other hand, Singapore was the major export market for crude oil and finished petroleum products.

Imported coal posted a 6.6 percent hike to reach 15.6 MTOE vis-à-vis 14.6 MTOE in 2019 driven by increased demand from coal-fired power plants. Indonesia remained as the country's major source of imported coal (96.9 percent share), while Australia, Vietnam and Russia supplied the rest of the import volume.

Coal exports fell by 24.6 percent to 4.0 MTOE due to low domestic production output and weak demand in China, the country's top export market (96.3 percent share), with the remaining export volume traded to India and Thailand. On a positive note, South Korea and Cambodia became new export markets during the year.

Bioethanol imports went down by 6.7 percent to reach 169.1 kTOE in 2020, from its 2019 level of 181.2 kTOE. This was due to the drop in gasoline demand as mandatorily blended with bioethanol.

[25] Includes Brunei, Malaysia, Singapore and Australia

D. ENVIRONMENTAL IMPACT

With economic activity halted and public transportation restricted across the country due to the COVID-19 pandemic, total greenhouse gas (GHG) emission fell by 7.7 percent to 120.0 million ton of CO_2 equivalent ($MtCO_2e$) from last year's 130.0 $MtCO_2e$ *(Table 2)*. The GHG emission of the transport sector, with its 22.9 percent share of total, dropped to 27.4 $MtCO_2e$, its lowest level since 2015, and constituted the bulk of the reduction in total GHG emission. Closures and lockdowns of industrial facilities led to 18.1 percent drop in GHG emission from the industry sector to 10.6 $MtCO_2e$ from its year-ago level of 13.0 $MtCO_2e$. On the other hand, GHG emissions from power generation posted a slight increment of 0.9 percent as levels reached 70.0 $MtCO_2e$, equivalent to 58.3 percent share of the total GHG emissions. This was driven by the increased utilization of coal as fuel input for power generation. Aggregate emission from other sectors (services, households and others) went up by 0.6 percent as energy consumption for household activities increased due to lockdowns/remote working.

Table 2: GHG Emission by Sector (2019 vs 2020)

Sector	CO_2 Emission ($MtCO_2e$)		Total NonCO_2 Emission ($MtCO_2e$)		Total GHG Emission ($MtCO_2e$)		Percent Change
	2019	2020	2019	2020	2019	2020	2019-2020
Power Generation	69.10	69.70	0.30	0.31	69.40	70.01	0.89
Transport	35.35	27.27	0.22	0.17	35.57	27.44	-22.86
Industry	12.89	10.56	0.07	0.06	12.96	10.62	-18.09
Other Sectors*	11.04	11.10	0.06	0.06	11.10	11.17	0.61
Energy**	1.00	0.77	0.00	0.00	1.00	0.77	-23.25
Total	**129.37**	**119.40**	**0.67**	**0.61**	**130.03**	**120.01**	**-7.71**
Percent Distribution							**Change in Distribution**
Power Generation	53.41	58.38	45.62	51.38	53.37	58.34	4.97
Transport	27.32	22.84	33.26	28.48	27.35	22.86	-4.49
Industry	9.96	8.85	11.01	9.14	9.97	8.85	-1.12
Other Sector*	8.53	9.30	9.71	10.72	8.54	9.31	0.77
Energy**	0.77	0.64	0.40	0.28	0.77	0.64	-0.13
Total	**100**	**100**	**100**	**100**	**100**	**100**	

**includes emission from the services, households and agriculture*
***includes losses incurred in oil refining*

By fuel source, coal consistently accounted for the largest portion of GHG emission with 55.9 percent share at 67.1 $MtCO_2e$ despite a slight reduction of 0.8 percent. This was attributed to the reduction in coal utilization of the cement manufacturing industry, which offset the increased consumption for power generation. Emissions from oil also fell by 16.1 percent to 45.2 $MtCO_2e$ due to restrictions

Table 3: GHG Emission by Fuel (2019 vs 2020)

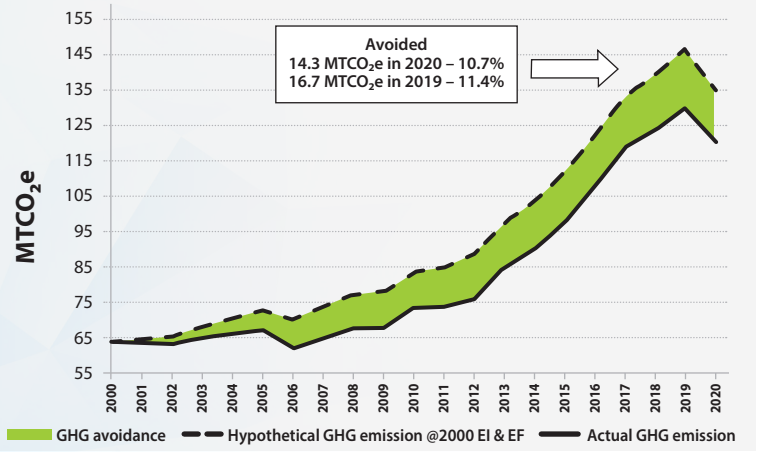
Fuel	CO_2 Emission ($MtCO_2e$)		Total NonCO_2 Emission ($MtCO_2e$)		Total GHG Emission ($MtCO_2e$)		Percent Change
	2019	2020	2019	2020	2019	2020	2019-2020
Oil	53.58	44.96	0.31	0.26	53.89	45.21	-16.10
Coal	67.31	66.76	0.35	0.34	67.66	67.10	-0.83
Gas	8.48	7.69	0.01	0.01	8.49	7.70	-9.31
Total	**129.37**	**119.40**	**0.67**	**0.61**	**130.03**	**120.01**	**-7.71**
Percent Distribution							**Percent Distribution**
Oil	41.42	37.65	46.53	42.73	41.44	37.68	-3.77
Coal	52.03	55.91	52.25	56.06	52.03	55.91	3.88
Gas	6.56	6.44	1.22	1.20	6.53	6.41	-0.11
Total	**100**	**100**	**100**	**100**	**100**	**100**	

**includes emission from the services, households and agriculture*
***includes losses incurred in oil refining*

on public transportation modes under varying levels of community quarantines. Shutdown of the PSPC's Tabangao refinery contributed to the reduction in GHG emissions from natural gas of 9.3 percent, as levels dropped to 7.7 $MtCO_2e$ *(Table 3)*.

Strategies to address climate change impact in the energy sector contributed to GHG emission avoidance as shown in *Figure 17* and *Table 4*, which illustrate the mitigation measures. Fuel diversification in power generation through intensified use of renewables and natural gas reduced GHG emission by 3.1 percent or 4.2 $MtCO_2e$ from the total hypothetical[26] GHG emission. Demand side measures, such as efficiency in fossil fuels and electricity, biofuels blending and natural gas further reduced hypothetical GHG emission by 7.5 percent or 10.1 $MtCO_2e$. These mitigation measures in the energy sector have avoided a total 14.3 $MtCO_2e$ or 10.7 percent of the hypothetical GHG emission reduction, translating to a decrease of 11.4 percent from 16.7 $MtCO_2e$ in 2019.

Figure 17. Actual GHG Emission, Hypothetical GHG Emission and GHG Avoidance, 2000–2020



Note: Hypothetical GHG Emission is equivalent to Actual GHG Emission plus GHG Emission Avoidance; GHG Base year is CY 2000 GHG Emission Level

Table 4. CO_2 Avoidance from Mitigation Measures, Thousand Ton CO_2e ($ktCO_2e$)

GHG Reduction Measures	2019	Reduction Impact* %	2020	Reduction Impact* %	Percent Change
Demand side	11,882.62	8.10	10,112.43	7.53	-14.90
Efficiency in Electricity Consumption (EEC)	3,429.89	2.34	2,995.08	2.23	-12.68
Efficiency in Fossil Fuel Consumption (EEF)	6,657.31	4.54	5,634.46	4.19	-15.36
Biofuel	1,795.41	1.22	1,482.90	1.10	-17.41
CNG/NG	0.00	0.00	0.00	0.00	-2.90
Supply side	**4,791.65**	**3.27**	**4,209.78**	**3.13**	**-12.14**
Fuel Diversification in Power Generation @ 2000 GDP & EF**	4,791.65	3.27	4,209.78	3.13	-12.14
Total Avoidance (Demand + Supply - EEC)	**16,674.27**	**11.37**	**14,322.21**	**10.66**	**-14.11**
Actual GHG Emission	**130,033.49**		**120,009.12**		**-7.71**
Hypothetical GHG Emission (Actual + Total Avoidance)	**146,707.76**		**134,331.33**		

**Refers to the percent reduced emission (Total Avoidance / Hypothetical GHG Emission x 100)*
*** Includes efficiency in Power Generation and EEC*

[26] Refers to actual GHG emission plus total avoidance, or the level of GHG emission if there were no mitigation measures being adopted.

E. ENERGY – ECONOMY AND ENVIRONMENTAL INDICATORS[27]

Like many countries battling the spread of the COVID-19 virus, the Philippines was forced to freeze economic activities and restricted the movement of individuals, as well as non-essential services to stem local transmission. With the National Capital Region (NCR) and major economic hubs in Visayas and Mindanao under quarantine for several months, the country's gross domestic product (GDP) plunged by 9.6 percent - its worst contraction since World War II.

All economic sectors posted reductions in their respective gross value added (GVA). The industry sector, which accounted for 29.2 percent share of GDP, plummeted by 13.2 percent as factories were either on lockdown or ceased their operations due to revenue losses, while construction projects, both public and private, were put on hold. The services sector with 60.7 percent share of GDP also registered a 9.2 percent decline as business establishments, particularly those engaged in wholesale and retail trade, accommodation and food service activities, real estate, professional and business services were forced to reduce their operating hours in compliance with the Inter-Agency Task Force (IATF)'s recommendation that allowed only essential services to operate during community quarantines. The agriculture sector with 10.2 percent contribution to GDP, while by battered by African Swine Fever (ASF) and strong typhoons, managed to restrict its contraction to 0.2 percent.

On the demand side, private consumption, which accounted for 73.7 percent share of GDP, slipped by 7.9 percent driven by declining incomes, employment losses and mobility challenges due to limited capacity of public transportation. Reflecting the global slump in international trade, both exports and imports of goods and services fell by 16.3 and 21.6 percent, respectively. Gross capital formation slumped by 34.4 percent as investments in durable equipment and construction contracted.

I. Energy Intensity

As economic output fell at a faster rate vis-à-vis energy demand, economy-wide energy intensity level reached 3.2 tonnes of oil equivalent per million pesos of real GDP (TOE/MPhP) in 2020 or 3.5 percent higher than its year-ago level of 3.1 TOE/MPhP. Electricity intensity stood at 5.8 watt-hour per peso (Wh/PhP), while that of oil remained unchanged at 0.8 barrels

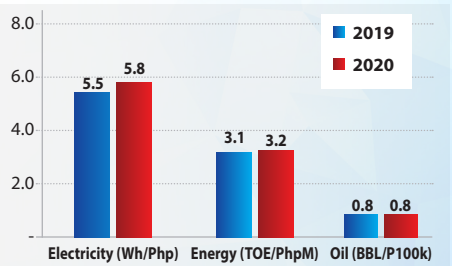


Figure 18. Energy Intensities (2019 vs. 2020)

[27] GDP figures as based on the PSA National Accounts of the Philippines (NAP), as of April 20, 2020 (rebased 2018)

per PhP100,000 *(Figure 18)*. The economic recession may have slowed down energy efficiency improvements driven by abrupt changes in energy consumption patterns of businesses and households alike, despite the expected gains from Republic Act 11285 or the Energy Efficiency and Conservation Act of 2019. In addition, the pandemic also contributed to structural changes across end-use economic sectors. The services sector, which included the energy-intensive transport subsector, recorded a 5.5 percent reduction in its energy intensity to 2.38 TOE/MPhP due to the slump in transportation modes under community quarantines. On the other hand, households recorded a 17.5 percent jump in the amount of energy consumed per unit of income[28] as a result of the work-from-home (WFH) scheme, emergence of household-based online businesses and conduct of online classes.

II. Energy Elasticity

The immediate impact of the slump in economic activity on energy demand is easily seen in the energy-to-GDP elasticity measured as the percentage change in energy demand for every percentage change in GDP. The GDP elasticity of oil stood at 1.5 during the year, indicating that changes in its consumption levels adjusted at a relatively faster rate compared to the downturn in economic output. On the other hand, energy- and electricity-to-GDP posted inelastic values of 0.7 and 0.4, respectively *(Figure 19)*.

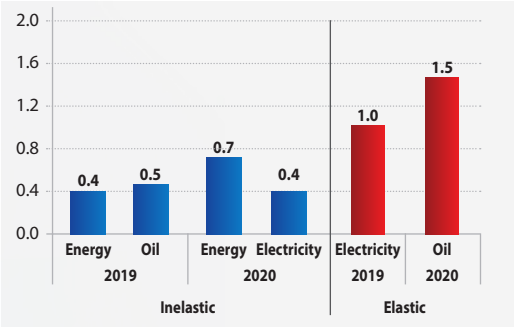


Figure 19. Energy Elasticities (2019 vs. 2020)

III. Energy Per Capita

Energy per capita values were likewise pulled down by the contraction in economic activity that resulted in depressed energy demand. The amount of energy per person dropped to 0.52 TOE or 7.1 percent lower than its year-ago level of 0.56 TOE. Electricity per capita also fell by 4.7 percent, while oil per capita plunged by 14.7 percent during the same year *(Figure 20)*.

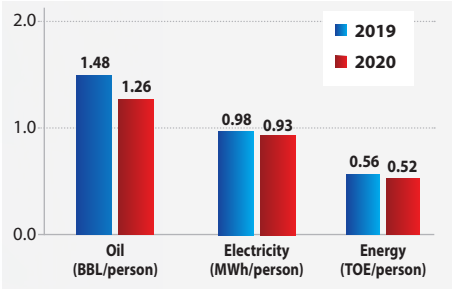


Figure 20. Energy Per Capita (2019 vs. 2020)

[28] Based on Household Final Consumption Expenditure (HFCE)

IV. GHG Emission

GHG emission per unit of economic output posted a 2.0 percent increment to 0.68 tons of CO_2e per PhP100,000 of GDP driven by increased utilization of coal for power generation *(Figure 21)*. This also translated to a higher GHG emission per megawatt-hour (MWh) of electricity generation of 0.69 tCO_2e vis-à-vis its year-ago level of 0.65 tCO_2e. Meanwhile, the reduction in oil consumption and oil's share to TPES resulted in a 2.0 percent and 1.8 percent decline in the level of GHG emission per TOE of TPES and oil, respectively. Restricted economic activity and mobility of individuals resulted in a 9.1 percent decline in GHG emission per capita from its year-ago level of 1.2 tCO_2e/person.

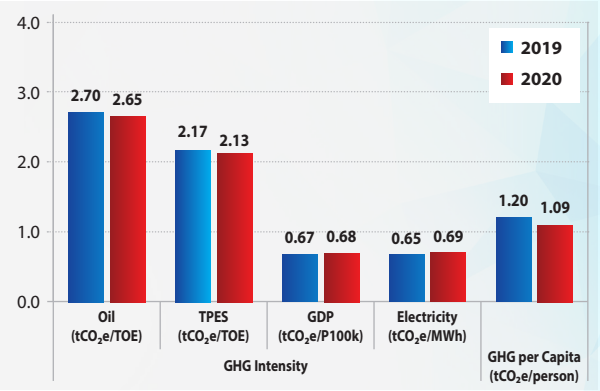


Figure 21. Environmental Emission Indicators (2019 vs. 2020)

2020 Energy Balance Table *In thousand tons of oil equivalent (kTOE)*

	Coal	Natural Gas	Oil & Oil Products	Hydro	Geothermal	Solar	Wind	Biomass	Biodiesel	Bioethanol	Electricity	Total
Indigenous	6,835.7	3,288.3	456.3	1,790.4	9,249.2	118.0	88.3	7,563.2	131.4	154.7	-	29,675.5
Imports	15,582.6	-	17,253.5	-	-	-	-	-	-	138.6	-	32,974.7
Exports	(3,971.9)	-	(1,650.2)	-	-	-	-	-	-	-	-	(5,622.1)
International Marine Bunkers	-	-	(100.7)	-	-	-	-	-	-	-	-	(100.7)
International Civil Aviation	-	-	(567.1)	-	-	-	-	-	-	-	-	(567.1)
Stock Change	(1,110.4)	-	1,061.4	-	-	-	-	-	25.4	30.5	-	6.9
Total Primary Energy Supply	**17,335.9**	**3,288.3**	**16,453.2**	**1,790.4**	**9,249.2**	**118.0**	**88.3**	**7,563.2**	**156.8**	**323.8**	**-**	**56,367.2**
Refinery (Crude Run)	-	-	(201.4)	-	-	-	-	-	-	-	-	(201.4)
Power Generation (Fuel Input)	(15,704.8)	(3,074.5)	(507.7)	(1,790.4)	(9,249.2)	(118.0)	(88.3)	(491.0)	(5.7)	-	8,749.4	(22,280.2)
Transmission/Distribution Loss	-	-	-	-	-	-	-	-	-	-	(837.6)	(837.6)
Energy Sector Use & Loss	-	(176.7)	(125.1)	-	-	-	-	-	-	-	(754.2)	(1,056.0)
Net Domestic Supply	**1,631.2**	**37.2**	**15,619.0**	**-**	**-**	**-**	**-**	**7,072.2**	**151.1**	**323.8**	**7,157.6**	**31,992.1**
Statistical Difference	-	-	-	-	-	-	-	-	-	-	-	(396.0)
% Statistical Difference	-	-	-	-	-	-	-	-	-	-	-	(1.2)
Total Final Energy Consumption	**1,631.2**	**37.2**	**16,015.0**	**-**	**-**	**-**	**-**	**7,072.2**	**151.1**	**323.8**	**7,157.6**	**32,388.0**
Industry	1,494.1	37.2	1,557.5	-	-	-	-	905.3	13.1	-	2,198.3	6,205.4
Transport	-	-	9,415.8	-	-	-	-	-	97.0	323.8	6.5	9,843.1
Residential	-	-	1,237.7	-	-	-	-	5,841.9	-	-	2,948.5	10,028.1
Commercial	-	-	2,466.8	-	-	-	-	325.1	37.0	-	1,782.2	4,611.1
Agri, Fishery and Forestry	-	-	210.9	-	-	-	-	-	3.9	-	222.0	436.8
Others, Non-Energy Use	137.1	-	1,126.3	-	-	-	-	-	-	-	-	1,263.5
											Self-Sufficiency (%)	**52.6**

2019 Energy Balance Table *In thousand tons of oil equivalent (kTOE)*

	Coal	Natural Gas	Oil & Oil Products	Hydro	Geothermal	Solar	Wind	Biomass	Biodiesel	Bioethanol	Electricity	Total
Indigenous	7,257.9	3,626.0	522.6	1,997.9	9,192.4	107.1	89.6	7,735.7	178.2	198.7	-	30,906.2
Imports	14,616.0	-	21,851.3	-	-	-	-	-	-	118.3	-	36,585.5
Exports	(5,267.4)	-	(1,520.4)	-	-	-	-	-	-	-	-	(6,787.8)
International Marine Bunkers	-	-	(54.0)	-	-	-	-	-	-	-	-	(54.0)
International Civil Aviation	-	-	(1,618.1)	-	-	-	-	-	-	-	-	(1,618.1)
Stock Change	875.1	-	(126.9)	-	-	-	-	-	9.0	62.9	-	820.1
Total Primary Energy Supply	**17,481.6**	**3,626.0**	**19,054.4**	**1,997.9**	**9,192.4**	**107.1**	**89.6**	**7,735.7**	**187.2**	**379.9**	**-**	**59,852.0**
Refinery (Crude Run)	-	-	(407.8)	-	-	-	-	-	-	-	-	(407.8)
Power Generation (Fuel Input)	(15,123.7)	(3,408.8)	(788.1)	(1,997.9)	(9,192.4)	(107.1)	(89.6)	(404.1)	(8.7)	-	9,117.9	(22,002.6)
Transmission/Distribution Loss	-	-	-	-	-	-	-	-	-	-	(859.4)	(859.4)
Energy Sector Use & Loss	-	(155.7)	(224.4)	-	-	-	-	-	-	-	(767.8)	(1,147.9)
Net Domestic Supply	**2,357.9**	**61.5**	**17,634.1**	**-**	**-**	**-**	**-**	**7,331.6**	**178.4**	**379.9**	**7,490.8**	**35,434.3**
Statistical Difference	-	-	-	-	-	-	-	-	-	-	-	(825.2)
% Statistical Difference	-	-	-	-	-	-	-	-	-	-	-	(2.3)
Total Final Energy Consumption	**2,357.9**	**61.5**	**18,459.3**	**-**	**-**	**-**	**-**	**7,331.6**	**178.4**	**379.9**	**7,490.8**	**36,259.5**
Industry	2,217.1	61.5	1,381.4	-	-	-	-	1,207.1	14.5	-	2,424.2	7,305.8
Transport	-	-	12,181.1	-	-	-	-	-	126.8	379.9	9.1	12,697.0
Residential	-	-	1,312.0	-	-	-	-	5,771.9	-	-	2,627.0	9,710.8
Commercial	-	-	2,359.7	-	-	-	-	352.6	32.9	-	2,190.5	4,935.8
Agri, Fishery and Forestry	-	-	229.4	-	-	-	-	-	4.2	-	239.9	473.5
Others, Non-Energy Use	140.9	-	995.8	-	-	-	-	-	-	-	-	1,136.6
											Self-Sufficiency (%)	**51.6**

2020
KEY ENERGY STATISTICS

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Energy and Economy

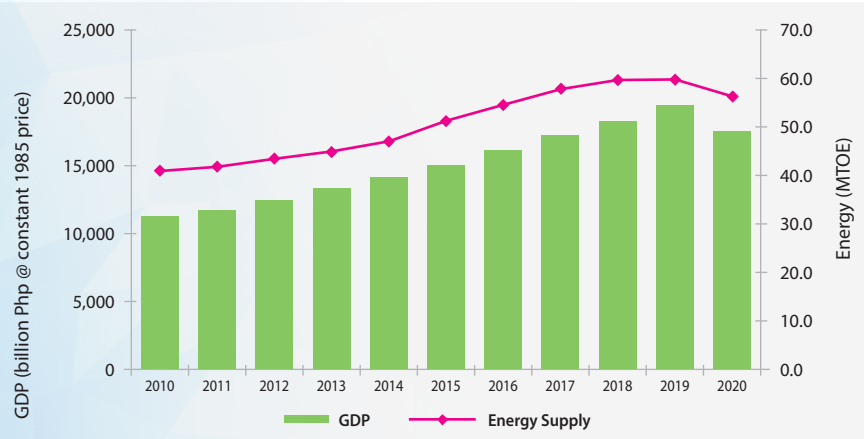
Energy and Economic Indicators

	2010	2011	2012	2013	2014	2015
GDP (in billion pesos: at constant 2018 prices)	11,183.9	11,615.4	12,416.5	13,254.6	14,096.0	14,990.9
Total Final Energy Consumption (in MTOE)	25.1	25.2	25.8	27.3	28.5	31.0
Total Primary Energy Supply (in MTOE)	41.0	41.9	43.5	45.0	47.0	51.3
Population (in million)	92.6	94.2	96.5	98.2	99.9	101.6
Forex (in Pesos/USD)	43.9	43.9	41.2	44.4	44.6	47.2
Average Crude Price (in USD / barrel)	78.0	106.2	109.0	105.0	97.0	50.9

	2016	2017	2018	2019	2020	AAGR*
GDP (in billion pesos: at constant 2018 prices)	16,062.7	17,176.0	18,265.2	19,382.8	17,527.2	4.6%
Total Final Energy Consumption (in MTOE)	33.5	35.5	35.7	36.3	32.4	2.6%
Total Primary Energy Supply (in MTOE)	54.6	58.0	59.7	59.9	56.4	3.2%
Population (in million)	103.2	104.9	106.6	108.3	109.9	1.7%
Forex (in Pesos/USD)	49.8	49.9	52.7	50.7	48.0	0.9%
Average Crude Price (in USD / barrel)	42.2	54.2	69.4	66.8	49.8	-4.4%

**AAGR - Average Annual Growth Rate*

GDP vs. Total Energy Supply

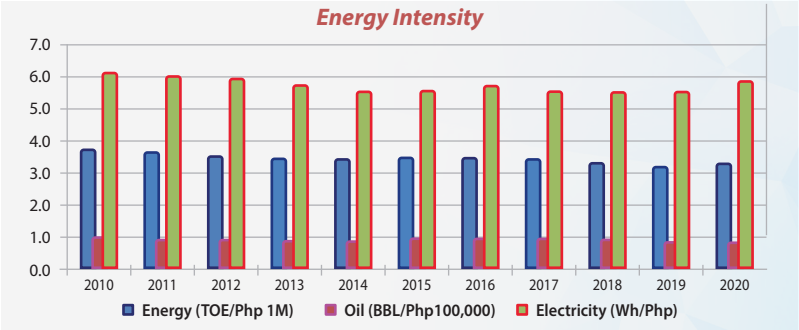


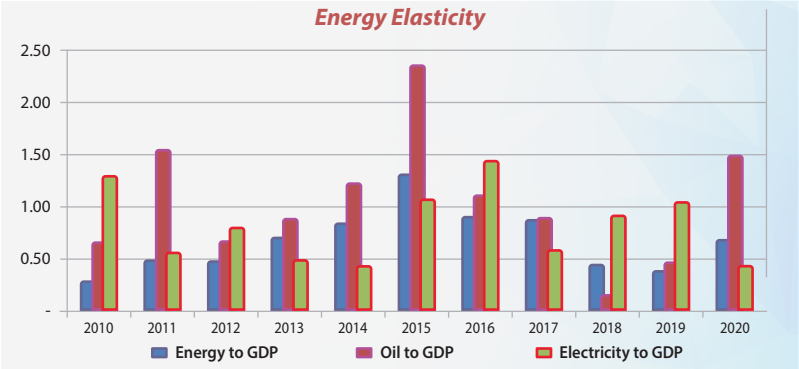
Sources:
Gross Domestic Product (GDP), Population -National Accounts, Philippine Statistical Authority (Rebased 2018)
Foreign Exchange Rate - Bangko Sentral ng Pilipinas (BSP)
Energy Supply - Policy Formulation and Research Division (PFRD), DOE
Crude Oil Price - Oil Industry Management Bureau (OIMB), DOE

Indicator	2010	2011	2012	2013	2014	2015
Intensity						
Energy to GDP** (TOE/Php 1M)	3.66	3.59	3.46	3.40	3.36	3.42
Oil to GDP (BBL/Php 100,000)	0.95	0.86	0.86	0.82	0.81	0.90
Electricity to GDP (Wh/Php)	6.06	5.96	5.87	5.68	5.48	5.50
Elasticity						
Energy to GDP	0.27	0.47	0.46	0.69	0.82	1.29
Oil to GDP	0.64	1.52	0.65	0.87	1.21	2.33
Electricity to GDP	1.28	0.55	0.79	0.48	0.42	1.05
Energy Per Capita (TOE/person)	0.44	0.44	0.45	0.46	0.47	0.50

Indicator	2016	2017	2018	2019	2020	AAGR*
Intensity						
Energy to GDP (TOE/Php 1M)	3.39	3.36	3.25	3.13	3.24	-1.2%
Oil to GDP (BBL/Php 100,000)	0.91	0.91	0.87	0.79	0.77	-2.1%
Electricity to GDP (Wh/Php)	5.65	5.49	5.46	5.47	5.81	-0.4%
Elasticity						
Energy to GDP	0.89	0.86	0.43	0.37	0.67	9.4%
Oil to GDP	1.09	0.88	0.14	0.45	1.47	8.6%
Electricity to GDP	1.42	0.57	0.90	1.03	0.42	-10.5%
Energy Per Capita (TOE/person)	0.53	0.55	0.56	0.55	0.51	1.5%

** average annual growth rate*
*** GDP Rebased 2018 @ constant price*





Energy and Environment

GHG Emission, by Sector and Activity

$MtCO_2e$ (1)

Sector and Activity	2010	2011	2012	2013	2014	2015
Industry	11.68	11.38	10.54	12.16	12.68	12.99
Transport	22.96	22.75	23.68	24.75	25.69	29.71
Others(2)	5.92	5.90	5.80	6.22	7.04	6.96
Electricity Generation	31.28	32.32	34.58	40.18	43.07	46.89
Energy(3)	1.02	0.94	1.04	0.89	1.05	0.91
Total	**72.85**	**73.29**	**75.64**	**84.20**	**89.53**	**97.46**

Sector and Activity	2016	2017	2018	2019	2020	AAGR*
Industry	15.05	16.36	13.99	12.96	10.62	-0.9%
Transport	32.15	33.20	34.36	35.57	27.44	1.8%
Others(2)	8.47	10.01	10.47	11.10	11.17	6.6%
Electricity Generation	50.95	58.24	63.76	69.40	70.01	8.4%
Energy(3)	0.63	0.68	0.74	1.04	0.77	-2.7%
Total	**107.25**	**118.48**	**123.32**	**130.07**	**120.01**	**5.1%**

Notes:
(1) Million tons of CO_2 Equivalent ($MTCO_2e$)
(2) includes Household, Services and Agriculture Sectors
(3) includes Oil refining, Electricity and other Energy sector own use and losses

**average annual growth rate*

GHG Emission, by Fuel Type

$MtCO_2e$

Fuel type	2010	2011	2012	2013	2014	2015
Liquid Fossils (Oil)	38.71	35.88	37.20	38.85	41.50	45.97
Solid Fossils (Coal)	27.05	29.75	31.11	38.59	40.93	44.81
Gaseous Fossil (Natural Gas)	7.09	7.65	7.34	6.76	7.11	6.68
Total	**72.85**	**73.29**	**75.64**	**84.20**	**89.53**	**97.46**

Fuel type	2016	2017	2018	2019	2020	AAGR*
Liquid Fossils (Oil)	49.22	51.15	51.73	53.93	45.21	1.6%
Solid Fossils (Coal)	50.37	59.78	63.16	67.66	67.10	9.5%
Gaseous Fossil (Natural Gas)	7.66	7.55	8.43	8.49	7.70	0.8%
Total	**107.25**	**118.48**	**123.32**	**130.07**	**120.01**	**5.1%**

**average annual growth rate*

Environmental Emission Indicators

GHG emission is expressed in carbon dioxide equivalent (CO_2e) which accounts for the global warming potential (GWP) of CH_4 and N_2O, as prescribed by the Intergovernmental Panel on Climate Change (IPCC). GWP is the ratio of the warming resulting from the emission of one kilogram of a greenhouse gas to that of one kilogram emission of CO_2 over a fixed period of time (i.e. CH_4 and N_2O GWP is 21 times and 310 times the CO_2 emission, respectively).

Indicator	2010	2011	2012	2013	2014	2015
GHG emission-to-GDP ratio (tCO_2e/PhP 100K, 2000=100)	0.65	0.63	0.61	0.64	0.64	0.65
GHG emission per capita (tCO_2e/person)	0.79	0.78	0.78	0.86	0.90	0.96
GHG emission per Electricity Generation (tCO_2e/MWh)	0.46	0.47	0.47	0.53	0.56	0.57
GHG emission per Oil consumption (tCO_2e/TOE)	2.50	2.61	2.51	2.58	2.58	2.41
GHG emission per TPES (tCO_2e/TOE)	1.77	1.75	1.74	1.87	1.91	1.90

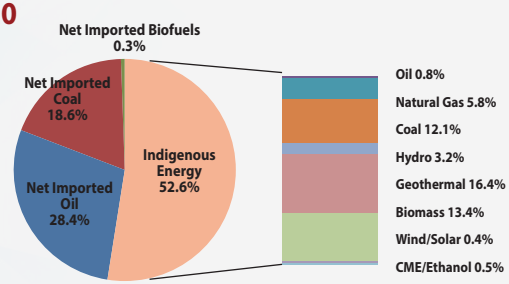
Indicator	2016	2017	2018	2019	2020	AAGR*
GHG emission-to-GDP ratio (tCO_2e/PhP 100K, 2000=100)	0.67	0.69	0.68	0.67	0.68	0.5%
GHG emission per capita (tCO_2e/person)	1.04	1.13	1.16	1.20	1.09	3.3%
GHG emission per Electricity Generation (tCO_2e/MWh)	0.56	0.62	0.64	0.65	0.69	4.1%
GHG emission per Oil consumption (tCO_2e/TOE)	2.45	2.45	2.48	2.70	2.65	0.6%
GHG emission per TPES (tCO_2e/TOE)	1.96	2.04	2.07	2.17	2.13	1.8%

**average annual growth rate*

Energy Mix

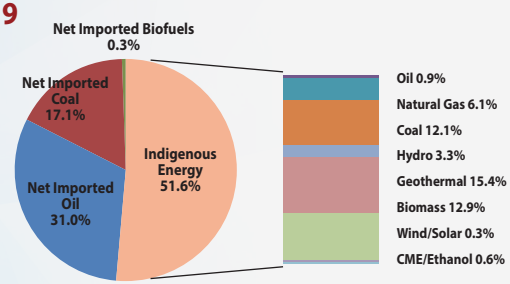
Total Primary Energy Supply Mix

2020



Total Energy: 56.4 MTOE
Self-Sufficiency: 52.6%

2019



Total Energy: 59.9 MTOE
Self Sufficiency: 51.6%

Total Energy and Self-Sufficiency Level

in kTOE

	2010	2011	2012	2013	2014	2015
Indigenous Energy	**24,725**	**25,706**	**26,248**	**25,469**	**26,606**	**26,881**
Oil	916	842	700	680	849	715
Natural Gas	3,028	3,269	3,134	2,887	3,036	2,854
Coal	3,510	3,648	3,874	3,747	4,012	3,894
Hydro	1,943	2,414	2,552	2,494	2,275	2,157
Geothermal	8,538	8,549	8,813	8,258	8,863	9,496
Biomass	6,679	6,874	7,035	7,237	7,356	7,431
Wind/Solar	5	8	7	6	14	76
Biofuels	107	102	134	160	200	258
Net Imported Energy	**16,322**	**16,145**	**17,275**	**19,520**	**20,383**	**24,393**
Oil	12,693	11,945	12,906	13,075	13,571	16,496
Coal	3,521	4,078	4,210	6,255	6,630	7,721
Biofuels	108	121	159	190	182	176
Total Energy	**41,046**	**41,851**	**43,524**	**44,989**	**46,990**	**51,274**
Renewable Energy	17,379	18,068	18,700	18,345	18,891	19,594
Clean Energy (RE + Natural Gas)	20,407	21,337	21,834	21,232	21,927	22,448
Self Sufficiency (%)	**60.2**	**61.4**	**60.3**	**56.6**	**56.6**	**52.4**

	2016	2017	2018	2019	2020	AAGR*
Indigenous Energy	**29,405**	**29,515**	**29,977**	**30,906**	**29,676**	**1.8%**
Oil	702	622	594	523	456	-6.7%
Natural Gas	3,270	3,226	3,601	3,626	3,288	0.8%
Coal	5,917	6,298	6,204	7,258	6,836	6.9%
Hydro	2,019	2,393	2,336	1,998	1,790	-0.8%
Geothermal	9,519	8,831	8,973	9,192	9,249	0.8%
Biomass	7,494	7,651	7,725	7,736	7,563	1.3%
Wind/Solar	178	197	207	197	206	43.9%
Biofuels	305	298	338	377	286	10.4%
Net Imported Energy	**25,185**	**28,443**	**29,739**	**28,946**	**26,692**	**5.0%**
Oil	17,844	19,048	19,400	18,532	15,997	2.3%
Coal	7,169	9,177	10,145	10,224	10,500	11.5%
Biofuels	172	219	194	190	194	6.1%
Total Energy	**54,590**	**57,958**	**59,717**	**59,852**	**56,367**	**3.2%**
Renewable Energy	19,687	19,588	19,772	19,690	19,290	1.0%
Clean Energy (RE + Natural Gas)	22,957	22,814	23,373	23,316	22,578	1.0%
Self Sufficiency (%)	**53.9**	**50.9**	**50.2**	**51.6**	**52.6**	

**average annual growth rate*

Energy Consumption

*Total Final Energy Consumption, by Sector and Type**

in kTOE

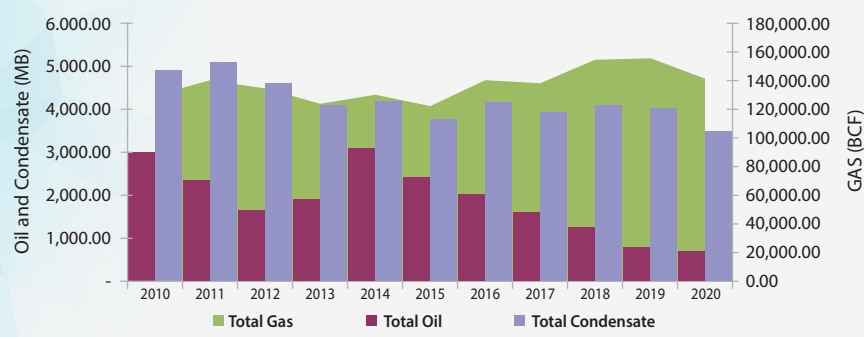
	2010	2011	2012	2013	2014	2015
Industry	**5,948**	**5,948**	**5,806**	**6,312**	**6,529**	**6,750**
Coal	1,841	1,838	1,671	2,082	2,261	2,218
Natural Gas	69	77	58	62	77	50
Oil	1,402	1,317	1,273	1,278	1,206	1,382
Biomass [(a)]	1,028	1,047	1,067	1,099	1,131	1,152
Biodiesel	10	6	12	13	11	12
Electricity	1,597	1,662	1,726	1,778	1,843	1,936
Transport	**8,035**	**7,983**	**8,364**	**8,784**	**9,133**	**10,557**
Natural Gas ***	0.36	1.08	1.19	0.81	0.08	-
Oil	7,843	7,770	8,092	8,460	8,782	10,151
Biodiesel	85	94	89	92	96	116
Bioethanol	98	108	172	222	246	281
Electricity	9	10	10	10	10	8
Household	**7,878**	**7,991**	**8,171**	**8,386**	**8,488**	**8,731**
Oil	930	916	901	880	862	973
Biomass [(b)]	5,329	5,468	5,577	5,733	5,823	5,802
Electricity	1,619	1,607	1,693	1,772	1,803	1,956
Services	**2,663**	**2,739**	**2,830**	**3,038**	**3,397**	**3,370**
Oil	941	979	965	1,121	1,432	1,292
Biomass [(c)]	313	318	323	327	332	337
Biodiesel	11	13	13	15	20	14
Electricity	1,398	1,429	1,529	1,574	1,613	1,727
Agriculture	**347**	**302**	**318**	**352**	**354**	**401**
Oil	215	186	181	189	172	194
Biodiesel	4	1	3	4	3	4
Electricity	128	115	133	160	178	203
Non-Energy Use	**220**	**220**	**285**	**428**	**605**	**1,179**
Oil	120	117	172	314	450	1,047
Coal	100	103	113	114	154	132
Total	**25,092**	**25,182**	**25,774**	**27,299**	**28,506**	**30,988**

	2016	2017	2018	2019	2020	AAGR**
Industry	**7,449**	**7,925**	**7,523**	**7,306**	**6,205**	**0.4%**
Coal	2,677	3,008	2,411	2,217	1,494	-2.1%
Natural Gas	65	53	59	62	37	-6.0%
Oil	1,458	1,470	1,469	1,381	1,557	1.1%
Biomass [a]	1,164	1,181	1,199	1,207	905	-1.3%
Biodiesel	13	14	13	15	13	2.8%
Electricity	2,074	2,199	2,372	2,424	2,198	3.2%
Transport	**11,425**	**11,823**	**12,238**	**12,697**	**9,843**	**2.0%**
Natural Gas ***	-	-	-	-	-	-31.1%
Oil	10,986	11,352	11,753	12,181	9,416	1.8%
Biodiesel	121	123	127	127	97	1.3%
Bioethanol	309	339	350	380	324	12.7%
Electricity	9	10	9	9	7	-3.5%
Household	**9,035**	**9,192**	**9,431**	**9,711**	**10,028**	**2.4%**
Oil	1,122	1,159	1,255	1,312	1,238	2.9%
Biomass [b]	5,709	5,731	5,746	5,772	5,842	0.9%
Electricity	2,204	2,303	2,430	2,627	2,949	6.2%
Services	**3,865**	**4,404**	**4,668**	**4,936**	**4,611**	**5.6%**
Oil	1,632	2,074	2,223	2,360	2,467	10.1%
Biomass [c]	340	345	350	353	325	0.4%
Biodiesel	21	28	30	33	37	13.1%
Electricity	1,872	1,958	2,065	2,191	1,782	2.5%
Agriculture	**450**	**516**	**440**	**473**	**437**	**2.3%**
Oil	229	290	208	229	211	-0.2%
Biodiesel	4	5	4	4	4	-0.1%
Electricity	218	220	228	240	222	5.7%
Non-Energy Use	**1,306**	**1,613**	**1,423**	**1,137**	**1,263**	**19.1%**
Oil	1,129	1,458	1,261	996	1,126	25.1%
Coal	177	155	162	141	137	3.2%
Total	**33,530**	**35,474**	**35,723**	**36,260**	**32,388**	**2.6%**

** does not include energy for power application*
***average annual growth rate*
**** AAGR from 2010-2014*
(a) includes ricehull, fuelwood, bagasse, agriwaste and animal waste
(b)includes charcoal, fuelwood, and agriwaste
(c) includes ricehull, charcoal, and fuelwood

Oil and Gas

Oil and Gas Production, by Source



	2010	2011	2012	2013	2014	2015
In MB						
Total Oil	**3,010**	**2,326**	**1,638**	**1,884**	**3,079**	**2,410**
Nido [a]	87	75	74	84	79	71
Matinloc [b]	70	51	71	66	70	71
North Matinloc [c]	18.78	16.11	10.53	10.03	8.87	8.36
Galoc	2,683.61	2,183.14	1,482.66	1,723.06	2,920.88	2,259.52
Tindalo [d]	152	-	-	-	-	-
Alegria [e]	-	-	-	-	-	-
Total Condensate	**4,895**	**5,072**	**4,594**	**4,084**	**4,173**	**3,746**
Malampaya Condensate	4,895	5,072	4,594	4,084	4,173	3,746
in MMSCF						
Total Gas	**130,008**	**140,368**	**134,563**	**123,944**	**130,351**	**122,541**
Libertad [f]	-	-	72	79	35	15
Malampaya Gas	130,008	140,368	134,491	123,866	130,316	122,527

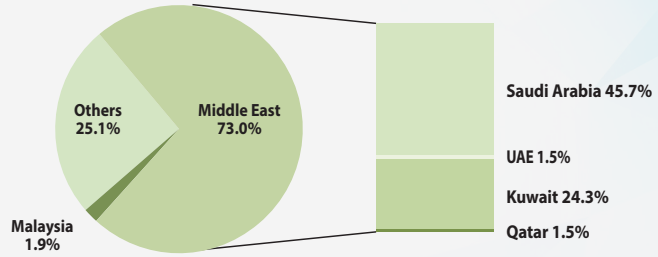
	2016	2017	2018	2019	2020	AAGR*
In MB						
Total Oil	**2,014**	**1,587**	**1,262**	**776**	**700**	**-13.6%**
Nido [a]	54	56	52	21	-	-14.7%
Matinloc [b]	73	67	43	2	-	-34.5%
North Matinloc [c]	9.12	2.10	-	-	-	-26.9%
Galoc	1,878	1,461	1,167	744	695	-12.6%
Tindalo [d]	-	-	-	-	-	
Alegria [e]	-	-	1.98	9.47	4.87	56.7%
Total Condensate	**4,136**	**3,914**	**4,061**	**4,006**	**3,469**	**-3.4%**
Malampaya Condensate	4,136	3,914	4,061	4,006	3,469	-3.4%
in MMSCF						
Total Gas	**140,398**	**138,497**	**154,622**	**155,690**	**141,191**	**0.8%**
Libertad [f]	-	-	-	-	-	-41.2%
Malampaya Gas	140,398	138,497	154,622	155,690	141,191	0.8%

**average annual growth rate*

(a) average annual growth rate from 2010 to 2019
(b) average annual growth rate from 2010 to 2019
(c) average annual growth rate from 2010 to 2017
(d) only one entry (2010)
(e) average annual growth rate from 2018 to 2020
(f) average annual growth rate from 2012 to 2015

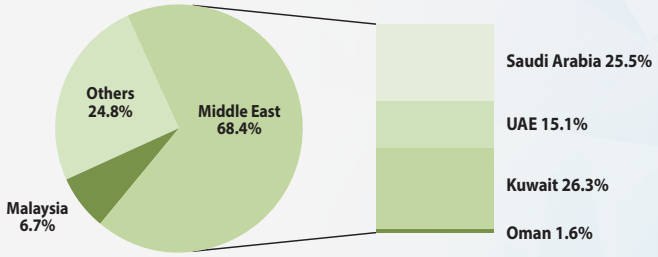
Crude Oil Importation, by Country of Source

2020



Total: 32,942 MB

2019



Total: 60,666 MB

Crude Oil Importation, by Country of Source

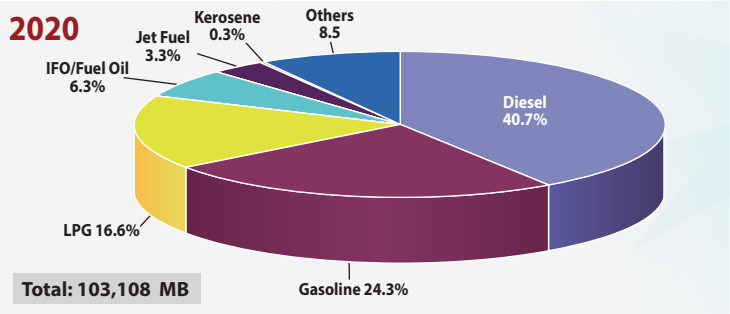
in MB

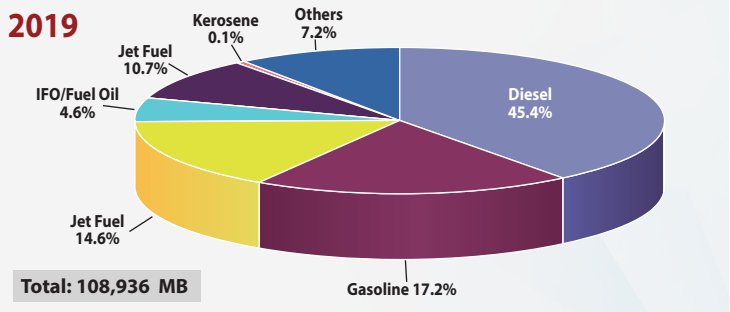
Source	2010	2011	2012	2013	2014	2015
Middle East	54,232	52,955	51,032	42,727	49,086	67,133
Saudi Arabia	30,359	30,795	29,784	23,500	37,103	34,427
Iran [a]	819	5,874	-	-	-	-
Kuwait [b]	-	-	-	-	-	16,877
UAE	18,088	14,730	16,230	9,717	6,403	8,365
Qatar	4,273	1,551	5,018	8,459	5,579	7,464
Oman [c]	693	6	-	-	-	-
Yemen [d]	-	-	-	1,050	-	-
Indonesia [e]	-	-	191	162	-	-
Malaysia	6,864	2,102	2,410	1,023	3,583	5,747
Others**	5,503	14,399	9,930	12,273	12,194	5,031
Total	**66,599**	**69,456**	**63,562**	**56,186**	**64,862**	**77,911**

Source	2016	2017	2018	2019	2020	AAGR*
Middle East	68,537	69,345	74,555	41,521	24,040	-7.8%
Saudi Arabia	28,438	27,097	28,880	15,498	15,044	-6.8%
Iran [a]	-	-	-	-	-	617.2%
Kuwait [b]	26,448	24,475	22,589	15,925	7,991	-13.9%
UAE	10,507	13,549	17,759	9,136	506	-30.1%
Qatar	2,618	2,999	4,235	-	498	-19.3%
Oman [c]	524	1,225	1,091	961	-	3.7%
Yemen [d]	-	-	-	-	-	
Indonesia [e]	396	-	221	-	-	2.5%
Malaysia	4,160	916	3,215	4,085	629	-21.3%
Others**	5,544	7,255	7,669	15,061	8,273	4.2%
Total	**78,637**	**77,516**	**85,660**	**60,666**	**32,942**	**-6.8%**

**average annual growth rate*
(a) average annual growth rate from 2010 to 2011
(b) average annual growth rate from 2015 to 2020
(c) average annual growth rate from 2010 to 2019
(d) only one (1) entry (2013)
(e) average annual growth rate from 2012 to 2018
*** includes Singapore, Brunei, Russia, Vietnam, Korea, Australia and other Asia and Pacific Region*

Oil Products Importation, by Type





in MB

Fuel	2010	2011	2012	2013	2014	2015
Diesel	22,368	18,672	24,941	26,464	30,343	28,375
Gasoline	12,575	11,248	12,378	14,599	14,828	15,148
LPG	8,758	8,599	8,218	9,074	9,299	9,691
IFO/Fuel Oil	5,660	2,287	1,876	2,685	4,901	10,129
Jet Fuel	3,547	4,838	5,928	6,449	6,579	5,722
Kerosene	289	247	228	1,490	430	199
Others**	1,411	781	1,211	1,756	3,279	8,670
Total	**54,607**	**46,671**	**54,780**	**62,517**	**69,658**	**77,934**

Fuel	2016	2017	2018	2019	2020	AAGR*
Diesel	35,345	40,105	38,784	49,462	41,977	6.5%
IFO/Fuel Oil	15,705	17,162	19,004	18,726	25,038	7.1%
Jet Fuel	11,613	13,910	15,224	15,957	17,109	6.9%
Gasoline	7,162	6,921	5,244	5,061	6,481	1.4%
Kerosene	6,837	8,928	9,331	11,708	3,408	-0.4%
LPG	252	317	265	134	304	0.5%
Others**	9,194	10,073	9,721	7,889	8,791	20.1%
Total	**86,108**	**97,415**	**97,573**	**108,936**	**103,108**	**6.6%**

**average annual growth rate*
***others include asphalt, solvents, naphtha/reformate, condensate*

Oil Products Importation, by Country of Source

MB

Source	2010	2011	2012	2013	2014	2015
Middle East	**2,257**	**3,177**	**1,597**	**2,449**	**1,966**	**1,678**
Bahrain	-	113	319	86	-	-
Iran	643	-	0	-	-	-
Iraq	-	-	-	-	-	-
KSA	86	429	251	843	551	1,085
Kuwait	250	361	340	504	406	228
Oman	-	-	-	251	-	135
Qatar	619	1,454	48	276	450	-
UAE	659	821	639	489	559	231
ASEAN	**31,933**	**17,729**	**14,275**	**17,312**	**16,523**	**19,979**
Indonesia	484	915	548	97	697	228
Malaysia	2,185	1,145	884	1,835	1,758	7,523
Philippines	5,609	3,720	3,025	4,427	805	-
Singapore	18,137	8,717	6,011	7,547	9,982	10,323
Thailand	5,269	3,174	3,767	3,148	2,473	1,272
Vietnam	250	58	41	258	808	633
OTHER ASIA	**19,919**	**25,686**	**38,613**	**42,531**	**50,335**	**53,160**
Bangladesh	601	-	-	-	-	-
China	3,076	6,422	5,561	8,117	10,504	10,938
Hong Kong	-	80	266	64	1	-
India	583	-	-	31	1,064	3,258
Japan	1,292	1,018	687	299	368	1,824
Russia	-	-	-	-	-	605
South Korea	5,744	8,124	13,893	14,875	21,229	17,886
Sri Lanka	-	-	-	-	-	-
Taiwan	8,623	10,042	18,206	19,145	16,993	17,674
Pakistan	-	-	-	-	177	975
OTHERS**	**498**	**79**	**295**	**224**	**834**	**3,117**
Total	**54,607**	**46,671**	**54,780**	**62,517**	**69,658**	**77,934**

Oil Products Importation, by Country of Source

Source	2016	2017	2018	2019	2020	AAGR*
Middle East	**6,280**	**5,272**	**11,521**	**8,436**	**8,492**	**15.5%**
Bahrain	-	-	-	-	-	
Iran	1	3	1	5	-	
Iraq	-	-	163	-	-	
KSA	1,402	1,081	1,204	1,242	1,407	
Kuwait	692	1,150	443	1,323	1,384	
Oman	-	90	3	176	-	
Qatar	1,490	1,263	1,265	657	1,868	
UAE	2,695	1,684	8,442	5,033	3,833	
ASEAN	**19,556**	**19,732**	**18,321**	**24,697**	**34,651**	**48.6%**
Brunei	-	-	-	222	4,293	
Indonesia	1,610	1,186	539	590	1,738	
Malaysia	4,572	7,557	7,661	9,161	9,338	
Philippines	-	-	-	-	-	
Singapore	12,147	10,273	7,910	12,551	18,188	
Thailand	36	377	930	266	409	
Vietnam	1,192	340	1,281	1,907	685	
OTHER ASIA	**58,342**	**67,305**	**64,491**	**73,156**	**55,327**	**10.8%**
Bangladesh	-	-	-	-	-	
China	24,997	32,460	29,421	45,472	32,247	
Hong Kong	51	158	-	0	20	
India	2,763	4,686	2,682	3,219	4,409	
Japan	4,701	4,261	2,673	1,373	518	
Russia	-	-	-	-	512	
South Korea	16,233	22,521	28,083	22,701	16,045	
Sri Lanka	-	-	271	-	-	
Taiwan	9,204	2,216	1,028	391	1,575	
Pakistan	393	1,002	333	-	-	
OTHERS**	**1,930**	**5,106**	**3,240**	**2,646**	**4,638**	**25.0%**
Total	**86,108**	**97,415**	**97,573**	**108,936**	**103,108**	**6.6%**

**average annual growth rate*
***Others include countries from Africa, Asia and Pacific, Europe and North America*

Oil Products Exportation, by Country of Destination

MB

Destination	2010	2011	2012	2013	2014	2015
Middle East	**6**	**9**	**-**	**-**	**-**	**-**
UAE	6	9	-	-	-	-
ASEAN	**4,034**	**5,574**	**2,870**	**4,000**	**5,916**	**6,691**
Indonesia	-	36	19	433	21	98
Malaysia	188	516	667	944	679	2,416
Singapore	3,255	4,030	1,737	2,279	3,704	3,066
Thailand	591	991	446	344	1,513	919
Vietnam	-	-	-	-	-	192
OTHER ASIA	**7,991**	**7,888**	**6,524**	**4,619**	**3,643**	**6,433**
China	1,137	970	315	473	717	1,441
Hong Kong	-	396	678	629	-	-
India	32	141	-	-	-	-
Japan	456	101	-	78	-	-
South Korea	4,691	4,416	4,284	2,806	2,284	3,453
Taiwan	1,675	1,852	1,249	632	643	1,539
Pakistan	-	11	-	-	-	-
OTHERS	**-**	**-**	**1**	**1**	**2**	**864**
Australia	-	-	-	-	-	862
Saipan	-	-	1	1	2	2
Total	**12,031**	**13,470**	**9,395**	**8,619**	**9,561**	**13,988**

Oil Products Exportation, by Country of Destination

Destination	2016	2017	2018	2019	2020	AAGR*
Middle East [a]	**-**	**122**	**-**	**-**	**-**	**53.5%**
UAE	-	122	-	-	-	
ASEAN	**6,027**	**7,561**	**9,552**	**8,572**	**5,911**	**3.9%**
Bangladesh	-	36	-	-	-	
Indonesia	67	119	252	19	-	
Malaysia	1,259	2,131	1,319	1,786	2,571	
Singapore	2,711	2,849	4,812	4,602	2,753	
Thailand	1,683	2,333	3,025	1,818	476	
Vietnam	308	93	144	347	111	
OTHER ASIA	**7,727**	**6,899**	**7,040**	**3,037**	**1,994**	**-13%**
China	1,897	2,670	3,986	1,802	903	
Hong Kong	-	-	-	-	306	
India	-	-	-	-	36	
Japan	20	62	60	-	130	
South Korea	3,385	2,645	1,911	907	21	
Taiwan	2,424	1,523	1,083	327	598	
Pakistan	-	-	.	-	-	
OTHERS [b]	**18**	**48**	**160**	**67**	**0.47**	**-77.8%**
Australia	-	-	-	-	-	
Belgium	6	-	3	-	-	
Guam	10	-	-	-	-	
Saipan	2	3	3	2	0	
USA	-	45	154	65	-	
Total	**13,772**	**14,631**	**16,752**	**11,676**	**7,905**	**-4.1%**

**average annual growth rate*
(a) average annual growth rate from 2010 to 2017
(b) average annual growth rate from 2015 to 2020

Oil Products Consumption, by Sector and Type

MB

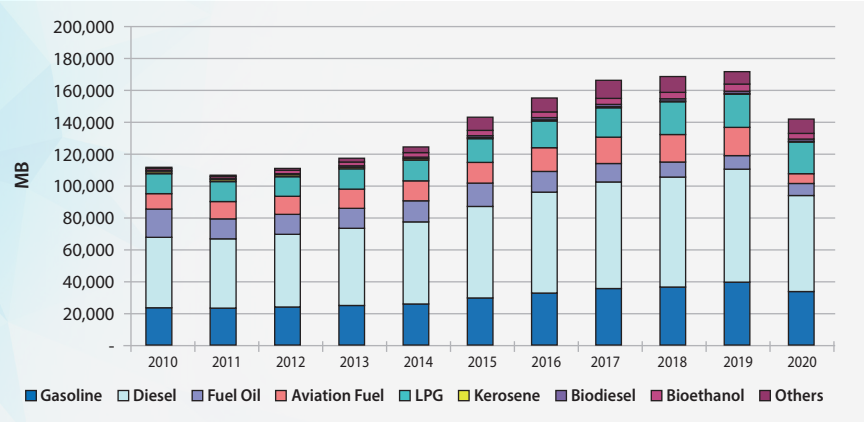
	2010	2011	2012	2013	2014	2015
Industry	**10,310**	**9,886**	**9,648**	**9,727**	**9,224**	**10,528**
Kerosene	151	155	138	120	126	139
LPG	700	1,147	1,169	1,203	1,387	1,528
Diesel	3,727	4,274	4,461	4,863	3,975	4,357
Fuel Oil	5,655	4,263	3,789	3,442	3,649	4,413
Biodiesel	76	48	91	99	86	92
Transport	**71,115**	**71,532**	**74,568**	**77,985**	**79,996**	**91,891**
Gasoline	23,484	23,152	23,882	24,940	25,795	29,601
Diesel	32,423	32,099	33,794	34,715	36,097	43,435
Fuel Oil	3,008	3,003	2,418	2,458	1,690	1,386
Aviation Fuel	9,647	10,845	11,432	12,049	12,463	13,086
LPG	800	495	420	621	453	321
Bioethanol	1,099	1,216	1,935	2,496	2,765	3,168
Biodiesel	656	721	686	705	734	893
Household	**9,712**	**9,605**	**9,461**	**9,233**	**9,074**	**10,301**
LPG	8,710	8,726	8,637	8,413	8,343	9,632
Kerosene	1,001	880	825	820	731	669
Services	**7,720**	**8,005**	**7,894**	**9,163**	**11,641**	**10,692**
LPG	2,335	2,256	2,209	2,477	2,890	3,360
Diesel	4,075	4,646	4,693	5,764	7,819	6,262
Fuel Oil	1,226	1,005	896	804	780	959
Biodiesel	83	97	96	118	151	111
Agriculture	**1,631**	**1,390**	**1,376**	**1,429**	**1,306**	**1,471**
Gasoline	62	33	56	17	37	66
Kerosene	7	6	9	7	3	3
Diesel	1,486	1,300	1,253	1,349	1,227	1,355
Fuel Oil	47	41	32	27	13	18
Biodiesel	30	10	26	28	26	29
Power Generation	**10,463**	**5,608**	**6,847**	**7,608**	**9,762**	**9,976**
Diesel	2,447	1,342	1,431	1,827	2,477	2,137
Fuel Oil	7,966	4,256	5,386	5,744	7,233	7,793
Biodiesel	50	11	29	37	52	45
Non-Energy Use	**858**	**830**	**1,198**	**2,345**	**3,501**	**8,368**
Total	**111,809**	**106,857**	**110,991**	**117,489**	**124,503**	**143,226**

Oil Products Consumption, by Sector and Type

	2016	2017	2018	2019	2020	AAGR*
Industry	**11,046**	**11,022**	**11,392**	**10,732**	**12,015**	**1.5%**
Kerosene	148	170	16	15	131	-1.5%
LPG	1,412	924	2,129	1,872	1,934	10.7%
Diesel	4,869	5,570	5,144	5,598	6,163	5.2%
Fuel Oil	4,520	4,247	4,000	3,136	3,686	-4.2%
Biodiesel	97	111	103	112	101	2.8%
Transport	**99,456**	**105,255**	**108,811**	**112,365**	**82,346**	**1.5%**
Gasoline	32,568	35,411	36,516	39,504	33,609	3.6%
Diesel	45,749	46,067	48,043	48,205	36,625	1.2%
Fuel Oil	1,707	2,431	1,845	1,637	1,488	-6.8%
Aviation Fuel	14,879	16,474	17,390	17,674	6,188	-4.3%
LPG	146	112	108	95	48	-24.6%
Bioethanol	3,477	3,818	3,936	4,276	3,643	12.7%
Biodiesel	929	942	972	974	745	1.3%
Household	**11,938**	**12,342**	**13,373**	**14,014**	**13,272**	**3.2%**
LPG	11,314	11,749	12,754	13,445	12,870	4.0%
Kerosene	624	593	620	569	402	-8.7%
Services	**13,456**	**17,357**	**18,393**	**19,386**	**20,121**	**10.1%**
LPG	4,054	5,767	5,495	5,370	5,028	8.0%
Diesel	7,853	10,368	11,641	12,668	13,934	13.1%
Fuel Oil	1,390	1,011	1,025	1,095	874	-3.3%
Biodiesel	158	212	233	253	284	13.1%
Agriculture	**1,731**	**2,202**	**1,579**	**1,741**	**1,602**	**-0.2%**
Gasoline	61	98	58	74	80	2.6%
Kerosene	5	3	3	3	4	-4.8%
Diesel	1,577	2,008	1,484	1,615	1,473	-0.1%
Fuel Oil	56	52	5	17	15	-10.5%
Biodiesel	32	41	30	32	30	-0.1%
Power Generation	**8,833**	**6,965**	**5,292**	**5,728**	**3,704**	**-9.9%**
Diesel	3,573	2,926	2,770	3,015	2,149	-1.3%
Fuel Oil	5,188	3,979	2,460	2,646	1,512	-15.3%
Biodiesel	72	60	62	67	44	-1.3%
Non-Energy Use	**8,954**	**11,397**	**9,964**	**7,851**	**8,956**	**26.4%**
Total	**155,414**	**166,539**	**168,805**	**171,817**	**142,017**	**2.4%**

**average annual growth rate*

Oil Products Consumption, by Type



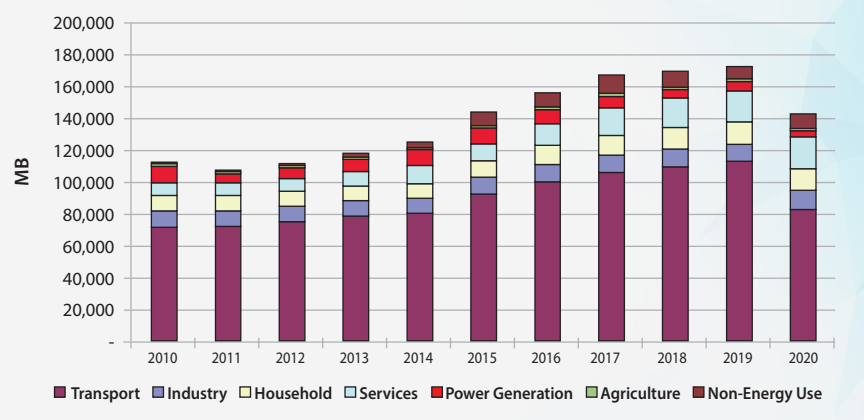
MB

	2010	2011	2012	2013	2014	2015
Gasoline	23,545	23,185	23,938	24,957	25,833	29,667
Diesel	44,158	43,660	45,632	48,518	51,595	57,545
Fuel Oil	17,901	12,568	12,521	12,475	13,364	14,568
Aviation Fuel	9,647	10,845	11,432	12,049	12,463	13,086
LPG	12,546	12,624	12,434	12,714	13,073	14,842
Kerosene	1,159	1,041	971	947	860	811
Biodiesel	896	887	929	987	1,049	1,171
Bioethanol	1,099	1,216	1,935	2,496	2,765	3,168
Others**	858	830	1,198	2,345	3,501	8,368
Total	**111,809**	**106,857**	**110,991**	**117,489**	**124,503**	**143,226**

	2016	2017	2018	2019	2020	AAGR*
Gasoline	32,630	35,509	36,574	39,578	33,688	3.6%
Diesel	63,622	66,939	69,082	71,101	60,345	3.2%
Fuel Oil	12,862	11,719	9,335	8,530	7,575	-8.2%
Aviation Fuel	14,879	16,474	17,390	17,674	6,188	-4.3%
LPG	16,926	18,552	20,486	20,782	19,881	4.7%
Kerosene	777	767	638	587	537	-7.4%
Biodiesel	1,289	1,364	1,400	1,437	1,204	3.0%
Bioethanol	3,477	3,818	3,936	4,276	3,643	12.7%
Others**	8,954	11,397	9,964	7,851	8,956	26.4%
Total	**155,414**	**166,539**	**168,805**	**171,817**	**142,017**	**2.4%**

**average annual growth rate*
***includes asphalts, solvents, naphtha/reformate, condensate*

Oil Products Consumption, by Sector



MB

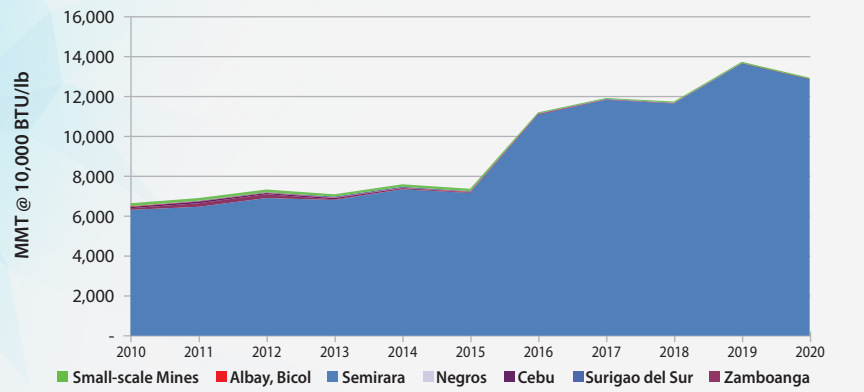
	2010	2011	2012	2013	2014	2015
Transport	71,115	71,532	74,568	77,985	79,996	91,891
Industry	10,310	9,886	9,648	9,727	9,224	10,528
Household	9,712	9,605	9,461	9,233	9,074	10,301
Services	7,720	8,005	7,894	9,163	11,641	10,692
Agriculture	1,631	1,390	1,376	1,429	1,306	1,471
Power Generation	10,463	5,608	6,847	7,608	9,762	9,976
Non-Energy Use	858	830	1,198	2,345	3,501	8,368
Total	**111,809**	**106,857**	**110,991**	**117,489**	**124,503**	**143,226**

	2016	2017	2018	2019	2020	AAGR*
Transport	99,456	105,255	108,811	112,365	82,346	1.5%
Industry	11,046	11,022	11,392	10,732	12,015	1.5%
Household	11,938	12,342	13,373	14,014	13,272	3.2%
Services	13,456	17,357	18,393	19,386	20,121	10.1%
Agriculture	1,731	2,202	1,579	1,741	1,602	-0.2%
Power Generation	8,833	6,965	5,292	5,728	3,704	-9.9%
Non-Energy Use	8,954	11,397	9,964	7,851	8,956	26.4%
Total	**155,414**	**166,539**	**168,805**	**171,817**	**142,017**	**2.4%**

**average annual growth rate*

Coal

Coal Production, by Source



in MMT @ 10,000 BTU/lb

	2010	2011	2012	2013	2014	2015
Semirara	6,318	6,471	6,911	6,813	7,345	7,168
Zamboanga [a]	81	180	193	30	15	5
Cebu	67	83	60	66	44	29
Albay, Bicol	31	17	18	23	21	28
Surigao del Sur [b]	3	23	21	52	50	28
Negros [c]	1	2	0	-	-	-
Small-scale Mines	148	134	138	116	127	119
Total Production	**6,650**	**6,911**	**7,340**	**7,100**	**7,601**	**7,378**
Run of Mine (MMT)	**7,337**	**7,612**	**8,083**	**7,859**	**8,419**	**8,173**

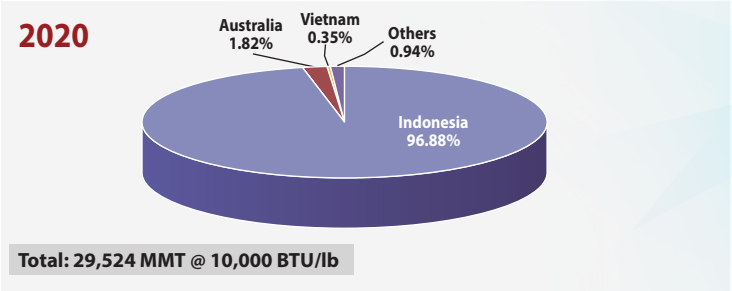
	2016	2017	2018	2019	2020	AAGR*
Semirara	11,084	11,839	11,654	13,670	12,880	7.4%
Zamboanga [a]	0.43	-	-	-	-	-58.2%
Cebu	35	13	7	6	2	-29.5%
Albay, Bicol	16	12	13	9	13	-8.7%
Surigao del Sur [b]	21	23	26	-	-	31.7%
Negros	-	0.49	0.14	0.68	0.29	-12.6%
Small-scale Mines	54	44	55	65	57	-9.2%
Total Production	**11,211**	**11,932**	**11,755**	**13,751**	**12,951**	**6.9%**
Run of Mine (MMT)	**12,087**	**13,264**	**13,054**	**15,274**	**13,257**	**6.1%**

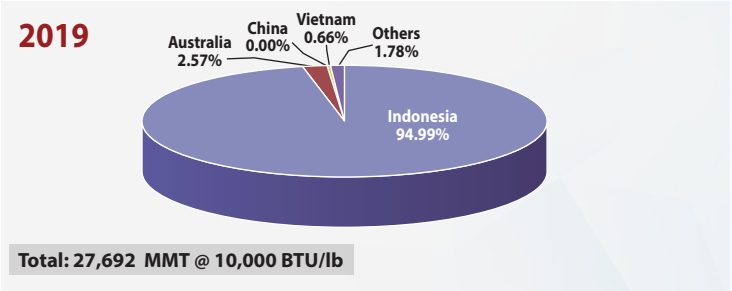
**average annual growth rate*

(a) average annual growth rate from 2010 to 2016

(b) average annual growth rate from 2010 to 2018

Coal Importation, by Country of Source





in MMT @ 10,000 BTU/lb

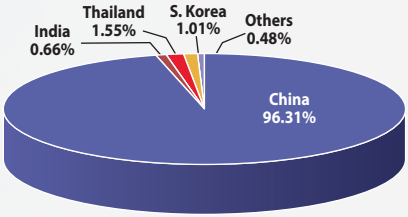
Country	2010	2011	2012	2013	2014	2015
Indonesia	10,602	10,894	11,700	13,964	14,975	16,673
Australia	65	-	195	201	-	306
China [a]	18	-	-	-	-	-
Vietnam	278	68	0	249	191	168
Others** [b]	3	-	-	-	15	132
Total	**10,966**	**10,963**	**11,895**	**14,415**	**15,182**	**17,279**

Country	2016	2017	2018	2019	2020	AAGR*
Indonesia	17,988	19,663	23,285	26,305	28,604	10.4%
Australia	1,310	1,401	1,249	711	538	23.5%
China [a]	-	-	96	1	-	-25.9%
Vietnam	270	219	303	182	103	-9.5%
Others** [b]	462	984	1,368	494	279	62.1%
Total	**20,030**	**22,268**	**26,301**	**27,692**	**29,524**	**10.4%**

**average annual growth rate*
(a) AAGR from 2010 to 2019
(b) AAGR from 2014 to 2020
***Imports from Malaysia, Peru, Russia, Taiwan, South Korea, South Africa and USA*

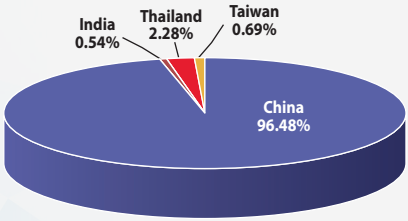
Coal Exportation, by Country of Destination

2020



Total: 7,525 MMT @ 10,000 BTU/lb

2019



Total: 9,980 MMT @ 10,000 BTU/lb

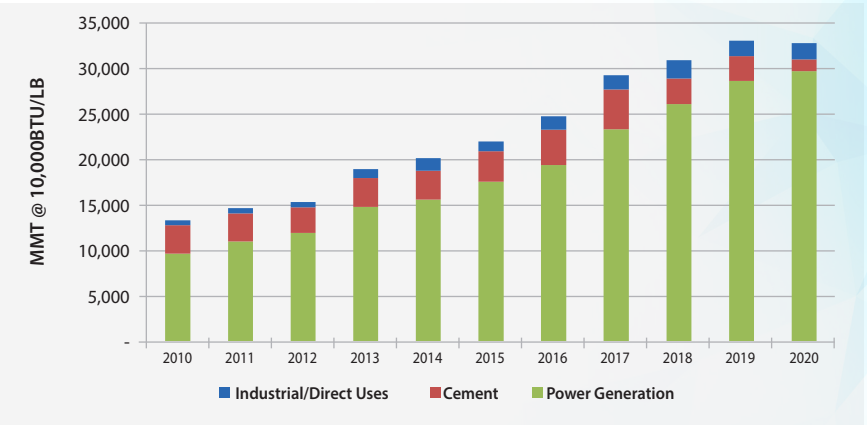
in MMT @ 10,000 BTU/lb

Country	2010	2011	2012	2013	2014	2015
China	3,104	2,671	2,931	2,975	4,613	2,750
India	308	-	57	-	55	-
Hongkong [a]	104	-	-	-	269	-
Thailand	482	55	163	217	307	321
Taiwan [b]	19	-	11	196	78	-
S. Korea	66	-	-	-	207	-
Others*** [c]	-	-	-	-	217	23
Total	**4,083**	**2,726**	**3,161**	**3,388**	**5,529**	**3,094**

Country	2016	2017	2018	2019	2020	AAGR*
China	6,540	5,697	4,926	9,629	7,247	8.9%
India	47	158	55	54	50	-16.7%
Hongkong [a]	-	-	-	-	-	26.7%
Thailand	222	104	55	228	116	-13.3%
Taiwan [b]	-	189	-	69	-	15.3%
S. Korea	-	-	-	-	76	1.4%
Others*** [c]	-	-	-	-	36	-25.8%
Total	**6,809**	**6,149**	**5,035**	**9,980**	**7,525**	**6.3%**

**average annual growth rate (AAGR)*
(a) average annual growth rate from 2010 to 2014
(b) average annual growth rate from 2010 to 2019
(c) average annual growth rate from 2014 to 2020
***includes Cambodia, Papua New Guinea, and Vietnam*

Coal Consumption, by Major Type of User



in MMT @ 10,000 BTU/lb

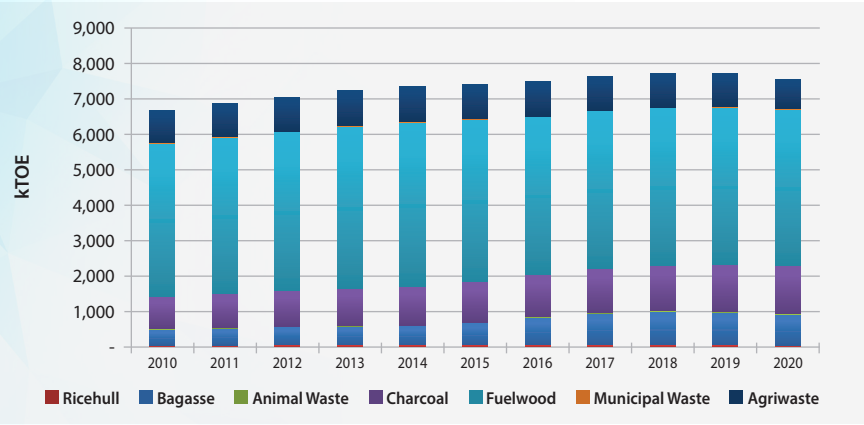
	2010	2011	2012	2013	2014	2015
Power Generation	9,643	10,961	11,937	14,791	15,587	17,554
Cement	3,118	3,127	2,799	3,156	3,203	3,348
Industrial/Direct Uses*	559	551	581	1,005	1,372	1,104
Total	**13,321**	**14,639**	**15,317**	**18,952**	**20,163**	**22,006**

	2016	2017	2018	2019	2020	AAGR**
Power Generation	19,386	23,327	26,101	28,654	29,755	11.9%
Cement	3,893	4,423	2,848	2,754	1,312	-8.3%
Industrial/Direct Uses*	1,515	1,569	2,027	1,714	1,779	12.3%
Total	**24,794**	**29,320**	**30,976**	**33,122**	**32,846**	**9.4%**

**non-energy use as raw materials*
***average annual growth rate*

Renewable Energy

Biomass Production, by Fuel Type



in kTOE

	2010	2011	2012	2013	2014	2015
Fuelwood	4,331	4,419	4,483	4,575	4,623	4,596
Charcoal	917	958	1,005	1,058	1,107	1,138
Agriwaste	912	936	949	980	992	982
Bagasse	445	477	515	533	540	627
Ricehull	51	52	52	54	55	55
Animal Waste	18	19	19	20	20	21
Municipal Waste	4	13	11	17	19	11
Total	**6,679**	**6,874**	**7,035**	**7,237**	**7,356**	**7,431**

	2016	2017	2018	2019	2020	AAGR*
Fuelwood	4,472	4,465	4,458	4,454	4,421	0.2%
Charcoal	1,193	1,236	1,281	1,329	1,364	4.0%
Agriwaste	967	968	958	947	836	-0.9%
Bagasse	780	899	942	919	877	7.0%
Ricehull	56	57	58	58	43	-1.6%
Animal Waste	21	21	21	22	16	-1.2%
Municipal Waste	5	6	6	7	5	2.6%
Total	**7,494**	**7,651**	**7,725**	**7,736**	**7,563**	**1.3%**

**average annual growth rate*

Geothermal

	2010	2011	2012	2013	2014	2015
Installed Generating Capacity (MW)	1,966	1,783	1,848	1,868	1,918	1,917
Dependable Generating Capacity (MW)	1,351	1,434	1,462	1,482	1,607	1,601
Electricity Generation (GWh)	9,929	9,942	10,250	9,605	10,308	11,044

	2016	2017	2018	2019	2020
Installed Generating Capacity (MW)	1,916	1,916	1,944	1,928	1,928
Dependable Generating Capacity (MW)	1,689	1,752	1,770	1,792	1,753
Electricity Generation (GWh)	11,070	10,270	10,435	10,691	10,757

Hydropower

	2010	2011	2012	2013	2014	2015
Installed Generating Capacity (MW)	3,400	3,491	3,521	3,521	3,543	3,600
Dependable Generating Capacity (MW)	3,021	2,963	2,983	2,983	2,982	3,073
Electricity Generation (GWh)	7,803	9,698	10,252	10,019	9,137	8,665

	2016	2017	2018	2019	2020
Installed Generating Capacity (MW)	3,618	3,627	3,701	3,760	3,779
Dependable Generating Capacity (MW)	3,181	3,269	3,473	3,508	3,527
Electricity Generation (GWh)	8,111	9,611	9,384	8,025	7,192

Wind

	2010	2011	2012	2013	2014	2015
Installed Generating Capacity (MW)	33	33	33	33	283	427
Dependable Generating Capacity (MW)	20	33	17	17	103	379
Electricity Generation (GWh)	62	88	75	66	152	748

	2016	2017	2018	2019	2020
Installed Generating Capacity (MW)	427	427	427	427	443
Dependable Generating Capacity (MW)	383	383	427	427	443
Electricity Generation (GWh)	975	1,094	1,153	1,042	1,026

Solar

	2010	2011	2012	2013	2014	2015
Installed Generating Capacity (MW)	1	1	1	1	23	165
Dependable Generating Capacity (MW)	1	1	0	0	17	125
Electricity Generation (GWh)	1	1	1	1	17	139

	2016	2017	2018	2019	2020
Installed Generating Capacity (MW)	765	885	896	921	1,019
Dependable Generating Capacity (MW)	594	700	740	737	817
Electricity Generation (GWh)	1,097	1,201	1,249	1,246	1,373

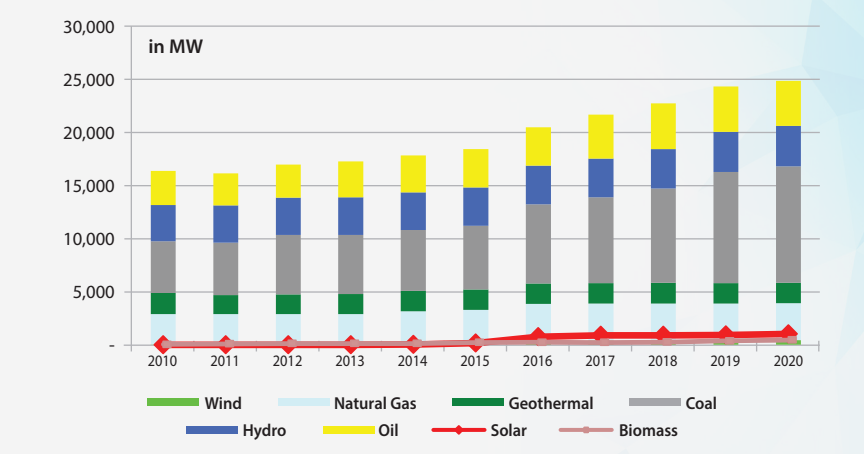
Biomass

	2010	2011	2012	2013	2014	2015
Installed Generating Capacity (MW)	38	83	119	119	131	221
Dependable Generating Capacity (MW)	20	46	76	76	81	146
Electricity Generation (GWh)	27	115	183	212	196	367

	2016	2017	2018	2019	2020
Installed Generating Capacity (MW)	233	224	258	363	447
Dependable Generating Capacity (MW)	157	160	182	227	285
Electricity Generation (GWh)	726	1,013	1,105	1,040	1,261

Power

Installed Generating Capacity, by Source



in MW

	2010	2011	2012	2013	2014	2015
Total Installed Capacity	**16,358**	**16,162**	**17,025**	**17,325**	**17,944**	**18,765**
Coal	4,867	4,917	5,568	5,568	5,708	5,963
Oil	3,193	2,994	3,074	3,353	3,476	3,610
Natural Gas	2,861	2,861	2,862	2,862	2,862	2,862
Renewable Energy	5,437	5,391	5,521	5,541	5,898	6,330
Geothermal	1,966	1,783	1,848	1,868	1,918	1,917
Hydro	3,400	3,491	3,521	3,521	3,543	3,600
Wind	33	33	33	33	283	427
Solar [(a)]	1	1	1	1	23	165
Biomass	38	83	119	119	131	221

	2016	2017	2018	2019	2020	AAGR*
Total Installed Capacity	**21,423**	**22,728**	**23,815**	**25,531**	**26,250**	**5%**
Coal	7,419	8,049	8,844	10,417	10,944	8%
Oil	3,616	4,153	4,292	4,262	4,237	3%
Natural Gas	3,431	3,447	3,453	3,453	3,453	2%
Renewable Energy	6,958	7,079	7,227	7,399	7,617	3%
Geothermal	1,916	1,916	1,944	1,928	1,928	0%
Hydro	3,618	3,627	3,701	3,760	3,779	1%
Wind	427	427	427	427	443	30%
Solar [(a)]	765	885	896	921	1,019	88%
Biomass	233	224	258	363	447	28%

**average annual growth rate*
(a) average annual growth rate from 2014 to 2020

Power Generation, by Source and Grid

in GWh

Luzon	2010	2011	2012	2013	2014	2015
Coal	20,047	19,681	21,878	25,756	27,346	29,680
Oil	3,287	1,291	1,800	1,601	2,342	1,845
Natural Gas	19,518	20,591	19,642	18,783	18,686	18,878
Renewable Energy	7,413	8,454	8,993	8,679	8,392	9,711
Geothermal	3,323	3,486	3,588	3,399	3,817	4,096
Hydro	4,014	4,836	5,292	5,156	4,357	4,769
Biomass	14	44	37	60	65	187
Solar [a]	-	-	-	-	-	66
Wind	62	88	75	66	152	592
Total	**50,265**	**50,017**	**52,312**	**54,820**	**56,766**	**60,113**

Luzon	2016	2017	2018	2019	2020	AAGR*
Coal	33,143	33,953	37,362	40,508	40,576	7%
Oil	2,562	2,379	2,188	2,674	1,804	-6%
Natural Gas	19,854	20,547	21,334	22,354	19,497	0%
Renewable Energy	10,938	11,633	11,845	10,640	10,542	4%
Geothermal	4,227	3,910	3,871	3,647	3,808	1%
Hydro	5,011	5,730	5,945	5,084	4,510	1%
Biomass	439	599	594	592	780	49%
Solar [a]	495	496	503	493	588	55%
Wind	767	899	931	824	855	30%
Total	**66,498**	**68,512**	**72,728**	**76,177**	**72,419**	**4%**

Visayas	2010	2011	2012	2013	2014	2015
Coal	1,529	4,032	4,701	4,690	4,449	4,968
Oil	1,727	683	734	796	766	672
Natural Gas [a]	-	-	-	7.81	4.27	-
Renewable Energy	5,820	5,740	6,047	5,606	5,794	6,530
Geothermal	5,771	5,616	5,930	5,463	5,627	6,105
Hydro	36	53	46	37	35	38
Biomass	13	72	71	106	117	159
Solar [b]	-	-	-	-	15	71
Wind [c]	-	-	-	-	-	157
Total	**9,075**	**10,456**	**11,483**	**11,100**	**11,014**	**12,170**

Visayas	2016	2017	2018	2019	2020	AAGR*
Coal	5,270	6,624	6,785	7,962	7,696	18%
Oil	637	541	353	524	298	-16%
Natural Gas [a]	-	-	-	-	-	-45%
Renewable Energy	7,047	6,889	7,129	7,573	7,491	3%
Geothermal	5,974	5,564	5,737	6,278	6,205	1%
Hydro	64	90	73	57	65	6%
Biomass	276	414	439	356	374	40%
Solar [b]	525	627	658	665	676	89%
Wind [c]	209	194	222	218	171	2%
Total	**12,955**	**14,054**	**14,266**	**16,060**	**15,485**	**5%**

Power Generation, by Source and Grid

Mindanao	2010	2011	2012	2013	2014	2015
Coal	1,726	1,629	1,686	1,635	1,258	2,038
Oil	2,087	1,424	1,720	2,094	2,599	3,369
Natural Gas	-	-	-	-	-	-
Renewable Energy	4,590	5,650	5,721	5,618	5,624	4,723
Geothermal	834	841	731	743	864	842
Hydro	3,754	4,808	4,913	4,827	4,745	3,858
Biomass (a)	-	-	75	47	14	21
Solar	1.25	1.21	1	1	1	2
Wind	-	-	-	-	-	-
Total	**8,403**	**8,703**	**9,127**	**9,347**	**9,481**	**10,130**

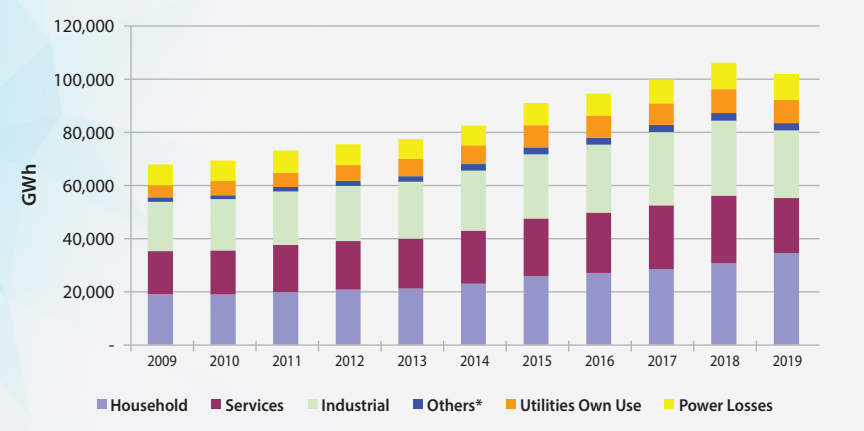
Mindanao	2016	2017	2018	2019	2020	AAGR*
Coal	4,890	6,271	7,785	9,420	9,904	19%
Oil	2,462	867	633	554	372	-16%
Natural Gas	-	-	-	-	-	
Renewable Energy	3,994	4,666	4,352	3,831	3,576	-2%
Geothermal	869	797	826	766	744	-1%
Hydro	3,036	3,791	3,366	2,885	2,617	-4%
Biomass (a)	11	-	72	93	107	5%
Solar	77	78	88	87	108	9%
Wind	-	-	-	-	-	
Total	**11,345**	**11,804**	**12,770**	**13,805**	**13,852**	**5%**

Philippines	2010	2011	2012	2013	2014	2015
Coal	23,301	25,342	28,265	32,081	33,054	36,686
Oil	7,101	3,398	4,254	4,491	5,708	5,886
Natural Gas	19,518	20,591	19,642	18,791	18,690	18,878
Renewable Energy	17,823	19,845	20,762	19,903	19,810	20,963
Geothermal	9,929	9,942	10,250	9,605	10,308	11,044
Hydro	7,803	9,698	10,252	10,019	9,137	8,665
Biomass	27	115	183	212	196	367
Solar [a]	1	1	1	1	17	139
Wind	62	88	75	66	152	748
Total	**67,743**	**69,176**	**72,922**	**75,266**	**77,261**	**82,413**
Self-sufficiency level (%)	**57**	**61**	**59**	**56**	**53**	**53**

Philippines	2016	2017	2018	2019	2020	AAGR*
Coal	43,303	46,847	51,932	57,890	58,176	10%
Oil	5,661	3,787	3,173	3,752	2,474	-10%
Natural Gas	19,854	20,547	21,334	22,354	19,497	0%
Renewable Energy	21,979	23,189	23,326	22,044	21,609	2%
Geothermal	11,070	10,270	10,435	10,691	10,757	1%
Hydro	8,111	9,611	9,384	8,025	7,192	-1%
Biomass	726	1,013	1,105	1,040	1,261	47%
Solar [a]	1,097	1,201	1,249	1,246	1,373	109%
Wind	975	1,094	1,153	1,042	1,026	32%
Total	**90,798**	**94,370**	**99,765**	**106,041**	**101,756**	**4%**
Self-sufficiency level (%)	**51**	**54**	**51**	**47**	47	

**average annual growth rate*
Luzon
(a) average annual growth rate from 2015 to 2020
Visayas
(a) average annual growth rate from 2013 to 2014
(b) average annual growth rate from 2014 to 2020
(c) average annual growth rate from 2015 to 2020
Mindanao
(a) average annual growth rate from 2012 to 2020
Philippines
(a) average annual growth rate from 2014 to 2020

Electricity Consumption, by Sector



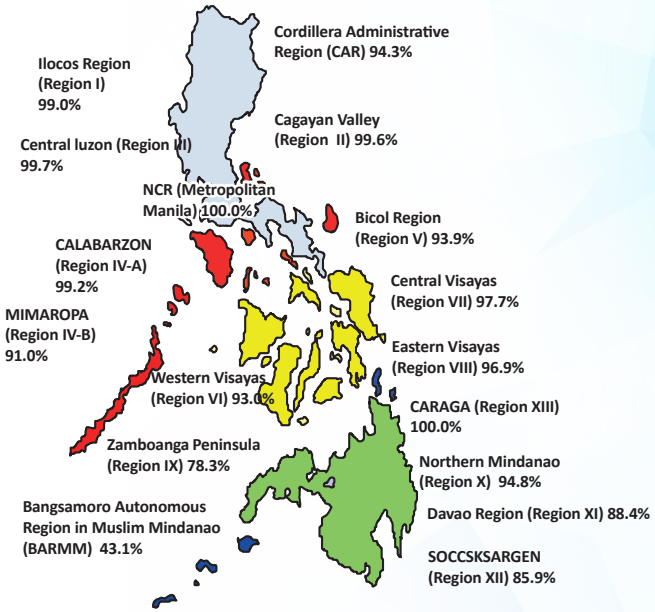
in GWh

	2010	2011	2012	2013	2014	2015
Household	18,833	18,694	19,695	20,614	20,969	22,747
Services	16,261	16,624	17,777	18,304	18,761	20,085
Industrial	18,576	19,334	20,071	20,677	21,429	22,514
Others*	1,596	1,446	1,668	1,971	2,186	2,462
Utilities Own Use	4,677	5,398	5,351	5,959	6,461	7,124
Power Losses	7,800	7,680	8,360	7,741	7,455	7,481
Total	**67,743**	**69,176**	**72,922**	**75,266**	**77,261**	**82,413**

	2016	2017	2018	2019	2020	AAGR**
Household	25,631	26,782	28,261	30,552	34,292	6.2%
Services	21,770	22,768	24,016	25,476	20,727	2.5%
Industrial	24,117	25,573	27,587	28,194	25,566	3.2%
Others*	2,634	2,670	2,753	2,897	2,658	5.2%
Utilities Own Use	8,357	8,316	8,141	8,929	8,771	6.5%
Power Losses	8,288	8,262	9,007	9,994	9,742	2.2%
Total	**90,798**	**94,370**	**99,765**	**106,041**	**101,756**	**4.2%**

** others include Transport and Agriculture*
***average annual growth rate*

Regional Household Electrification Level*



Region	Potential HH**	Served HH	Unserved HH	HH Elect'n Level %
CAR	395,881	399,298	22,563	94.3
I	1,151,629	1,263,437	11,320	99.0
II	804,380	887,587	2,963	99.6
III	2,566,558	3,039,828	6,776	99.7
IV-A	3,404,958	4,024,078	28,351	99.2
IV-B	682,668	690,981	61,395	91.0
V	1,216,421	1,178,337	73,789	93.9
NCR	3,095,766	3,491,459	0	100.0
Luzon	**13,318,261**	**14,975,005**	**207,157**	**98.4**
VI	1,716,637	1,720,332	120,551	93.0
VII	1,699,148	1,804,076	39,627	97.7
VIII	985,913	1,021,253	30,924	96.9
Visayas	**4,401,698**	**4,545,661**	**191,102**	**95.7**
IX	799,219	625,789	173,445	78.3
X	1,042,929	1,041,535	54,172	94.8
XI	1,177,461	1,049,494	136,534	88.4
XII	1,050,680	902,616	148,064	85.9
CARAGA	574,338	717,314	0	100.00
BARMM	620,385	268,924	353,021	43.10
Mindanao	**5,265,012**	**4,605,672**	**865,236**	**83.57**
Philippines	**22,984,971**	**24,126,338**	**1,263,495**	**94.50**

** Dec 2020 electrification level report of REAMD-EPIMB as of 2021 May*
***Based on the PSA 2015 Census of Population*
Note:
"A new formula was adopted for computing the electrification level which is (potential HH - unserved HH)/potential HH"

Transmission Profile

Transmission Lines (Circuit-Kilometers)	2008	2009	2010	2011	2012*	2013*
Luzon	9,527	9,568	9,638	9,529	9,374	9,439
Visayas	4,745	4,600	4,680	4,918	4,971	4,840
Mindanao	5,506	5,257	5,258	5,257	5,145	5,146
Total Philippines	**19,778**	**19,425**	**19,576**	**19,704**	**19,490**	**19,425**

Transmission Lines (Circuit-Kilometers)	2014	2015	2016	2017	2018	2019	2020**
Luzon	9,370	9,428	9,602	9,795	9,447	9,227	9,396
Visayas	4,821	4,813	4,476	4,973	5,379	5,299	5,299
Mindanao	5,272	5,832	6,081	6,081	5,679	5,553	5,824
Total Philippines	**19,463**	**20,073**	**20,159**	**20,849**	**20,505**	**20,079**	**20,519**

**There was a decrease in total transmission line length in circuit-km due to modification and divestment of various sub-transmission assets.*

Substation Capacity (In Million Volt-Amperes)	2008	2009	2010	2011	2012	2013
Luzon	18,861	18,452	19,937	20,590	21,170	21,110
Visayas	3,154	3,161	3,263	3,414	3,414	3,504
Mindanao	2,200	2,260	2,643	2,793	3,142	3,318
Total Philippines	**24,215**	**23,873**	**25,843**	**26,796**	**27,726**	**27,932**

Substation Capacity (In Million Volt-Amperes)	2014	2015	2016	2017	2018	2019	2020**
Luzon	23,395	23,785	25,900	25,887	26,598	28,021	27,955
Visayas	3,734	3,926	3,899	4,474	4,874	4,884	4,487
Mindanao	3,478	3,327	3,902	3,646	3,380	3,531	5,331
Total Philippines	**30,607**	**31,038**	**33,701**	**34,007**	**34,852**	**36,436**	**37,773**

Source: NGCP Transmission Development Plan 2016-2040 Volume 1 (Final Report)
2018-2019 - Power Situation Report
*****NGCP TDP PLAN 2021-2040 Consultation Draft Report as of August 2020***

Glossary

Condensate	Liquid hydrocarbons separated from gas production.
Dependable Capacity	The capacity that can be relied upon to carry system load for a specified time interval and period, provide assumed reserve, and/or meet firm power obilgations.
Electrification	Electrification is either done through grid or off-grid connection. When a barangay is provided with electricity through grid connection, it means that the distribution line has reached the barangay proper. It may also mean that almost 50.0 percent of potential households in the barangay are connected to a distribution utility (DU) (i.e. MERALCO) or at least one is connected to other DUs. Off-grid connection pertains to a barangay having about 20 to 30 households availing the connection.
Energy Elasticity	The percentage change in energy supply to achieve one per cent change in national GDP. Calculated as the ratio of growth of primary energy demand over GDP growth.
Energy Intensity	Calculated as units of energy (million tons of oil equivalent, MTOE) per unit of GDP (in billion pesos).
Energy Per Capita	Amount of energy used per person. It is calculated as total primary energy demand (in MTOE) over population (in millions).
Energy Self Sufficiency	The ratio of the country's domestic energy supply to total supply; measures the degree at which domestic energy forms can support total energy demand.
Gas (or Natural Gas)	A naturally occurring mixture of hydrocarbon and non-hydrocarbon gases in porous formations beneath the earth's surface, often in association with petroleum. The principal constituent is methane.
Geothermal Energy	Energy generated by heat stored in the earth, or the collection of absorbed heat derived from underground in the atmosphere and oceans.

Gross Domestic Product (GDP)	Total market value of all final goods and services produced within the country in a given period of time (usually a calendar year), or the sum of value added of all final goods and services produced within a country in a given period of time.
Gross National Product (GNP)	The value of all (final) goods and services produced in a country in one year, plus income earned by its citizens abroad, minus income earned by foreigners in the country.
Hydropower	Also called hydraulic power or water power; derived from the force or energy of moving water, which may be harnessed for useful purposes.
Indigenous Energy	Refers to all energy forms produced/sourced from within the country's natural resources.
Installed Capacity	The total of the capacities shown on the nameplates of the generating units in a powerplant.
Renewable Energy	Energy generated from natural resources which are naturally replenished. It includes solar power, wind power, hydroelectricity, micro hydro, biomass and biofuels.
Run of Mine	Coal directly coming from the mine
Total Final Energy Consumption (TFEC)	The sum of all energy forms consumed/used by different economic sectors
Total Primary Energy Demand (TPED)	The sum of total final consumption, power generation, other energy sector (own use and losses).
Total Primary Energy Supply (TPES)	The sum of all energy derived from domestic sources (indigeneous, renewable), imported from outside the country, stock change (+/-) and export (-)

Units of Measurement

BCF	Billion Cubic Feet
BTu	British Thermal Units
Ckt-Km	Circuit-Kilometer
GWh	Gigawatt-Hour
KWh	Kilowatt-hour
Ktoe	Thousand tonnes of oil equivalent
Lb	Pound
MB	Thousand Barrels
MMMT	Million Metric Tons
MMSCF	Million Standard Cubic Feet
MMT	Thousand Metric Tons
MTOE	Million tonnes of oil equivalent
MVA	Megavolt Ampere
MW	Megawatt
Php	Philippine Peso
ROM	Run of Mine
USD	US Dollar

Conversion Table

Fuels	to KTOE
Coal (MT@10,000 btu/lb.)	0.000528
Natural Gas (MMSCF)	0.023290
Crude (MB)	0.134400
Condensate (NGL) (MB)	0.104400
Premium Gasoline (MB)	0.124500
Regular Gasoline (MB)	0.122300
Kerosene (MB)	0.127000
Diesel (MB)	0.134700
Fuel Oil (MB)	0.144400
LPG (MB)	0.092200
Jet (MB)	0.127000
Avgas (MB)	0.122400
Naphtha (MB)	0.123800
Asphalts (MB)	0.152100
Lubes & Greases (MB)	0.141200
Others (MB)	0.123300
Ricehull (MT)	0.000345
Charcoal (MT)	0.000600
Fuelwood (MT)	0.000329
Bagasse (MT)	0.000426
Agriwaste (MT)	0.000329
Animal Waste (MT)	0.000516
Ethanol (BBL)	0.000089
CME (BBL)	0.000130
Hydro (GWh)	0.086000
Geothermal (GWh)	0.860000
Wind (GWh)	0.860000
Solar (GWh)	0.860000

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